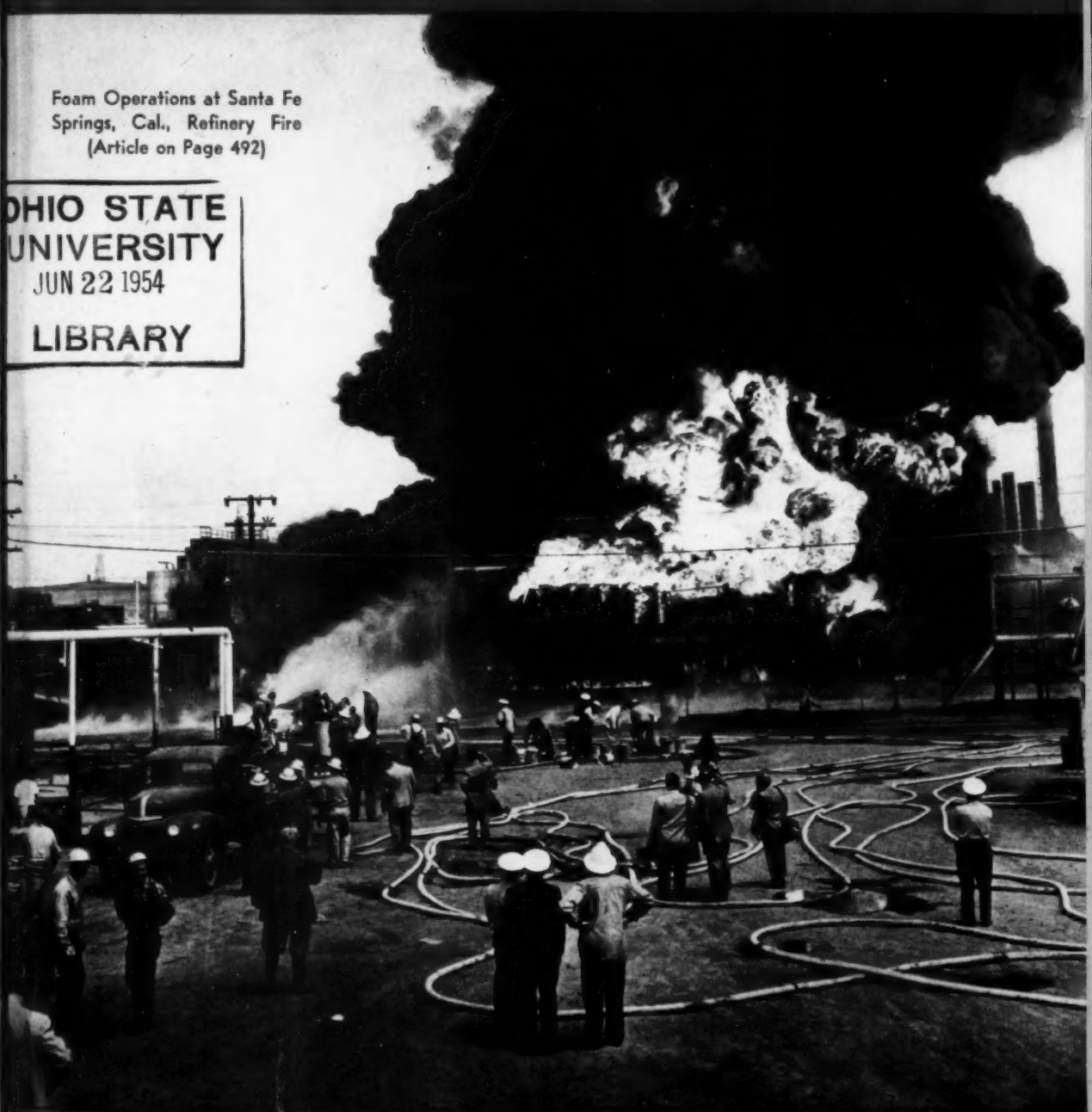
FIRE ENGINEERING

The Journal of the Fire Protection Profession Since 1877

JUNE, 1954



Foam Operations at Santa Fe Springs, Cal., Refinery Fire
(Article on Page 492)

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are you ready

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TOP QUALITY fire apparatus *STANDARDIZES* on TOP QUALITY SIGNALS PROTECTION!

SEAGRAVE 750 g.p.m. triple combination pumper. Portable lighting generator & portable pump in enclosed compartments. Standard FEDERAL Beacon Ray Light & FEDERAL Class Q siren.

SEAGRAVE 1000 g.p.m. triple combination pumper with 7 man canopy cab. Standard FEDERAL Beacon Ray light & FEDERAL Class Q siren.

SEAGRAVE 75' tractor-trailer aerial ladder truck with 268 h.p. engine and bronze 4-stage centrifugal, hi-pressure (1000#) pump. Post mounted FEDERAL 17A Beacon Ray light and FEDERAL Class C siren.

SEAGRAVE 750 g.p.m. triple combination pumper with 500 gal. tank & deluge gun for fixed or portable use. Post mounted FEDERAL 17A Beacon Ray light & FEDERAL Class C siren.

It's just good, common sense that the *finest* fire-fighting equipment be protected by the very finest warning signals! With outstanding manufacturers of fire apparatus, Federal Signals are *STANDARD EQUIPMENT!*

The fire-fighters illustrated, scream their missions with road-clearing Federal Coaster Sirens that can't be ignored; flash the danger signal with the famous Federal Beacon Ray revolving light that commands instant alertness even when standing still. Write today for information about "Warning Signals by Federal".

DON'T COMPROMISE SAFETY WITH LESS THAN THE BEST — SPECIFY FEDERAL!

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The equipment shown is manufactured by the SEAGRAVE Corporation, Columbus, Ohio. SEAGRAVE has STANDARDIZED on FEDERAL Warning equipment.

SEAGRAVE 215 h.p., 750 g.p.m. triple combination pumper with auxiliary 4-stage centrifugal hi-pressure pump (1000#). 500 gal. water tank plus foam & wet water tanks & proportioners. Standard FEDERAL Beacon Ray light & FEDERAL Class C siren.

FIRE ENGINEERING

A Consolidation of FIRE AND WATER ENGINEERING, THE FIRE ENGINEER, FIRE PROTECTION *and* FIRE SERVICE

FRED SHEPPERD
Editor

ROI B. WOOLLEY
Assistant Editor

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Reserves

"WE are vexed these days with large-loss fires," says the National Board of Fire Underwriters. So, too, we might add, are the nation's firefighters, who battled nearly 300 of these "conflagrations" last year—blazes that were only a small fraction of the million-and-more fires of the year, but which caused over one-quarter of the total fire loss, and over 350 of the 12,500 lives sacrificed to fire in 1953.

● These large-loss disasters called for unusually heavy concentrations of firemen and all their resources. Over half of them necessitated summoning outside aid because the municipalities involved lacked the reserves to throw into the battle.

● It's a wonderful feeling for a fire chief to be able to call upon outsiders for "mutual aid"—and get it (even if somewhat belatedly) when disaster strikes, but it's a lot better to have a healthy supply of reserves *right in your own bailiwick!*

● A lot of our cities—particularly those classed as "target areas", are doing a good job building up their reserve fire control facilities against the day when they may face a crisis. Many have augmented their regular facilities with FCDA-shared-apparatus and communications equipment. Many have rehabilitated outmoded units that have been replaced by new, modern apparatus, and added the former to their reserves.

Who was it said, *"wars are won by the armies having the greatest reserves"?* How about *your own* resources?

The Publishers

FIRE ENGINEERING

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"Specialized Leadership"

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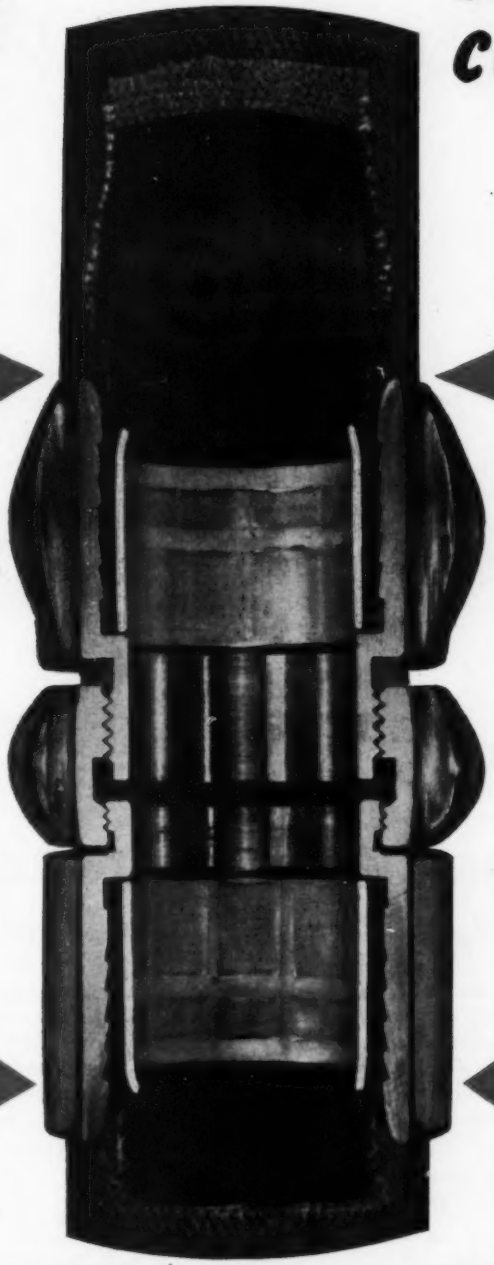
MG WITH BLOW-PROOF COUPLINGS



TAPERED THROAT

Relieves jacket shearing action under severe pressure surge or shock. Cushions and protects jackets at coupling throat. Contains water hammer. Prevents hose burst at collar.

CRIMPED RING

This heavy gauge ring utilizes powerful expansion pressure while crimp of special design at throat relieves rubber and jacket materials. Prevents deformed and cut linings at ring.

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MORE G-U-T-S!

The MG coupling will take a terrific amount of punishment. It will not bend or deform under toughest service. Rugged and dependable, it will give long, trouble-free performance.

HI-YIELD BOWL

Coupling bowl made from bronze alloy strengthened by the addition of high yield manganese. Extreme expansion pressure is utilized to insure positive, blow proof bond.

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to help meet a unique fire protection need

Rochester's Mayo Clinic gives the world's best medical attention to some 140,000 patients annually. Rochester must also give these patients — and the many more thousands of relatives and friends who accompany them — the best possible fire protection. That is why they chose the best in fire fighting equipment — a John Bean HPV* Fire-Fighter.

Two independent pump systems, operating separately or simultaneously, give Rochester's John Bean HPV* Fire-Fighter a two-fisted punch. The John Bean High-Pressure Fog system makes instantly available fast acting, easily controlled fog streams, while the Bean Multi-Stage Volume Pump delivers a steady, positive conventional stream under any operating conditions.

You, too, can give your community the best fire fighting protection. Get complete details — write for catalog today.

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Can be mounted on most standard truck chassis

A PRODUCT OF FOOD MACHINERY AND CHEMICAL CORPORATION

RESEARCH KEEPS **B.F.Goodrich** FIRST IN RUBBER

Easy up—with B. F. Goodrich Fire King

THE job of hoisting hose up a ladder can be slow and dangerous if you have the heavy, cumbersome, old-fashioned type. But B. F. Goodrich Fire King, because it is 18% lighter, can be lifted with speed and ease.

Fire King gets its lightness and flexibility from a chemically produced fiber. Used as "filler" cords—the cords that go around the hose and give it strength to take top pressure—the fiber gives Fire King 50% more strength. Ordinary hose is tested to only 400 pounds pressure whereas Fire King is tested to 600 pounds.

Just as important is the protection from cracks and blowouts in the coupling area caused by flexing, pressure, strain. In B. F. Goodrich Fire King this cause of hose failure has been eliminated. An extra layer of hard woven cords extends back from the ends of the hose protecting the tube from damage. As a result, not one single length of B. F. Goodrich hose with end protection has ever failed in the coupling area.

In the picture, Fire Chief Ted Brown of Elkin, North Carolina watches while two of the lightest members of his department take a length of Fire King up on a roof. Chief Brown says, "It's easy for our boys to get this Fire King up the ladder and on the roof in a hurry." Proof of Fire King's popularity with these firemen is the fact that it is always carried on top of No. 1 truck. They will never use the old hose unless they absolutely have to.

Next time you're replacing or adding hose, ask your BFG Fire Hose Distributor to show you a sample of Fire King. Compare it with your present hose for light weight, ease of handling and the end protection feature. Prove to yourself that this B. F. Goodrich hose is your best buy. *The B. F. Goodrich Company, Dept. M-246, Akron 18, Ohio.*

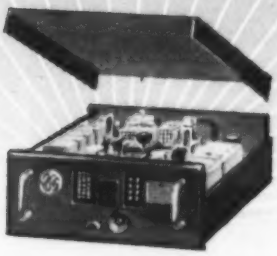
B.F.Goodrich
INDUSTRIAL PRODUCTS DIVISION

A GREAT 450 MC UNIT

"Guarantee

G-E 2-WAY RADIO...YEARS AHEAD WITH SELECTIVITY

GUARANTEED FOR LIFE!



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SELECTIVITY GUARANTEED FOR LIFE!

✓ **SELECTIVITY GUARANTEED FOR LIFE.** New multi-coil IF transformers. Compare G-E specs *with any other!*

✓ **RESERVE POWER** at the station—40 watt output on all station equipment—continuous duty rating.

✓ **FULL 6/12 VOLT OPERATION.** Mobile unit functions from 6 or 12 volt source.

✓ **HIGH-Q CAVITIES** at *both* receiver input and transmitter output—your best insurance against TV interference.

✓ **4-CHANNEL OPERATION . . .** Here's *positive* assurance of performance on different frequencies!

✓ **290 KC LOW IF**—the right IF for mobile radio equipment!

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TODAY, as always, General Electric stamps its products with a quality brand. Here is not just another piece of mobile radio gear to satisfy consumer need . . . here is a standard of performance for the industry to follow. IF tuning . . . guaranteed for life! Your interests deserve nothing less than the criteria G.E. has established for mobile radio performance.

Examine every feature of this outstanding 450 MC equipment. Compare *power . . . reliability . . . maintenance requirements . . .* because the story of G-E's superior design is right there for all to see . . . for all to take advantage of. Get the G-E 2-way radio story today!

NOW! Get this guarantee policy when you purchase *any* new G-E 2-way radio . . . *regardless of type!*

Get full information from your local G-E district representative or write direct to: *General Electric Company, Section X5964, Electronics Park, Syracuse, New York.*

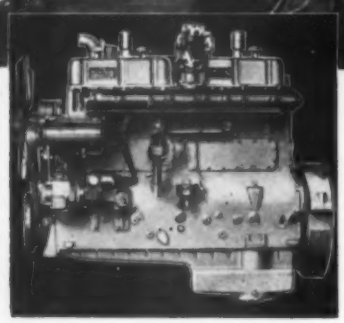
You can put your confidence in—

GENERAL ELECTRIC

CHICAGO GETS 30 FWD 1000 GPM PUMPERS all powered with—

WAUKESHA FIRE FIGHTER ENGINES

Chicago Tribune photo



WAUKESHA 145 GKB High Output FIRE FIGHTER Engine, 6-cylinders, 5¼ in. x 6 in., 779 cu. in. 240 hp. @ 2400 rpm. counterbalanced, vibration dampened. 3½ in. 7-bearing hardened crankshaft, dual ignition, precision bearings, overhead valves with Stellite-faced exhaust valves and seats, removable wet sleeve cylinders. Get Bulletin 1594.

239

FWD Pumper, Model F-1000-T, equipped with Waterous CD-3 two-stage centrifugal pump. Powered with Waukesha 145 GKB High Output Fire Fighter engine, arranged for full electrical equipment and all modern accessories.

WAUKESHA MOTOR COMPANY, Waukesha, Wis.

New York • Tulsa • Los Angeles

Call the Ansul Man

for faster more effective fire protection

FAST, EFFECTIVE EQUIPMENT. A positive activating system puts Ansul's "Plus-Fifty" dry chemical to work immediately—no lag or delay. To insure full fire coverage, patented nozzles deliver the right kind of stream for your fire protection problem (low velocity or long range).

DEPENDABLE EQUIPMENT. Ansul extinguishers are water-tight, corrosion resistant, always ready for action, even after extreme weathering and exposure to wide temperature variations. Quality features like these make it possible for Ansul to back their equipment with a 5-year warranty.

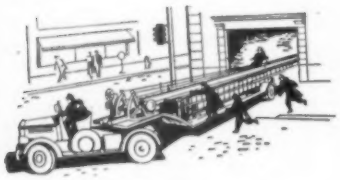
TRAINING FOR YOUR PERSONNEL. At Marinette, Wisconsin, Ansul operates one of the largest and best equipped fire-training schools in America—to train your key protection men without cost or obligation. A trained Ansul man will also instruct your fire brigade at your plant.

COMPLETE PLANT SURVEY. Knowing and recognizing a fire protection problem takes a highly trained man. The Ansul man is a specialist in utilizing fire extinguishing equipment properly and effectively—he will see to it that your plant gets the best protection possible at the lowest cost.

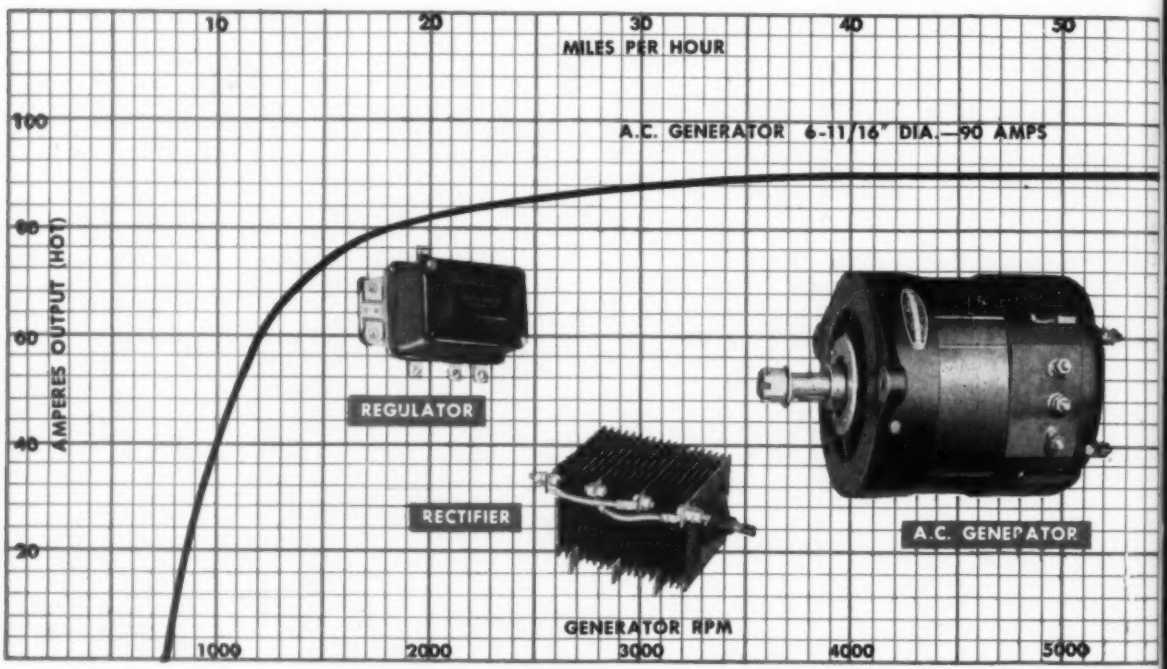
Get in touch with your local Ansul man through the "yellow pages" or write ANSUL CHEMICAL COMPANY, Fire Equipment Div., Dept. F-11, Marinette, Wisconsin.

ANSUL

Power Packed and



HERE'S THE A.C. ANSWER TO EXTRA-HEAVY ELECTRICAL DEMANDS



DELCO-REMY

A. C. Generator, Regulator and Rectifier

Here's the answer for "problem" vehicles—Delco-Remy's new long-lived A.C.-D.C. charging system! It's specifically designed to meet the *extra*-heavy electrical demands of fire engines, police prowl cars, big city taxis—other vehicles equipped with two-way radio, floodlights or any extra electrical units. Ample current reserve picks up discharged battery quickly in operation. Delco-Remy A.C. generators are suitable for use at all engine speeds.

With output ranging from 30-40 amperes at curb idle and up to 90 amperes at higher engine speeds, the new Delco-Remy A.C.-D.C. charging system meets all electrical needs under the toughest operating conditions. Included in the new system is the A.C. generator, a matching regulator, and a rugged, dependable dry-plate rectifier which converts generator A.C. output to direct current.

Application packages complete with installation instruction sheets for popular makes of cars and trucks are now available. The conversion job is simple. For further details and application data, see your nearest United Motors distributor.

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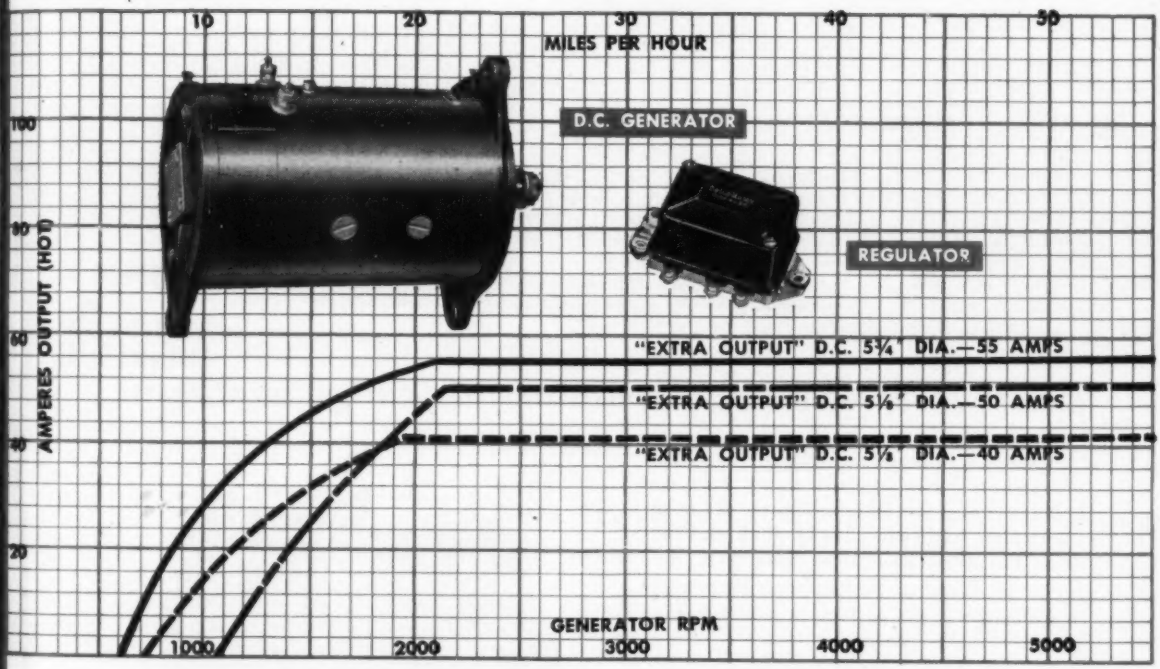
DISTRIBUTED BY WHOLESALERS EVERYWHERE

WHEREVER WHEELS TURN OR PROPELLERS SPI

Right for the Job

HERE'S THE D.C. ANSWER TO HEAVY ELECTRICAL DEMANDS



DELCO-REMY

Extra-Output D. C. Generators and Matching Regulators

Delco-Remy extra-output D.C. generators are an economical answer to the electrical needs of fire engines, suburban police cars, rural mail cars . . . other vehicles with additional lights, two-way radios, or other special electrical equipment in medium to heavy-duty service. Delco-Remy extra-output D.C. generators are low in cost, simple to install, economical to maintain.

DELCO-REMY 40-AMP GENERATOR has low cut-in, about 7 mph, charges from 11 to 17 amperes at curb idle . . . full output about 18 mph —for vehicles customarily used in heavy traffic.

DELCO-REMY 50-AMP GENERATOR has slightly higher cut-in, about 11 mph . . . full output about 21 mph—for vehicles customarily operated at higher speeds, with minimum slow driving.

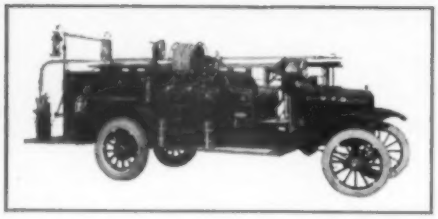
DELCO-REMY 55-AMP GENERATOR has very low cut-in, about 6 mph; charges at curb idle from 20 to 30 amperes . . . attains full output at 20 to 25 mph—for vehicles customarily operated at low speeds with added electrical loads, such as city taxicabs and police cars.

For further details and application data, see your nearest United Motors distributor.

Delco-Remy

DIVISION, GENERAL MOTORS CORPORATION, ANDERSON, INDIANA

WHEREVER WHEELS TURN OR PROPELLERS SPIN



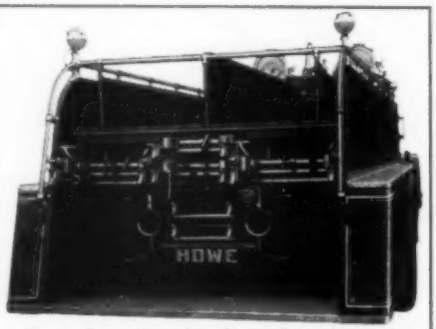
VINTON and now it's HOWE

Finest in fire-fighting apparatus for four generations

THERE'S an affinity between the early and modern HOWE pumpers above. Each can be termed the complete fire fighter of its day —complete with pump, hose, tank and ladders. The early one dates from 1923, but HOWE produced its first automobile pumper in 1908, the result of experiments begun in the pioneer days of motors.

HOWE LEADERSHIP

B.J.C. Howe, who founded the company in 1872, obtained patents on the first horse-operated fire department type piston pump ever built. Keeping up the tradition he established, HOWE was first to combine a volume pump and a high-pressure fog power take-off pump. Always in a HOWE pumper you may specify the latest and best in equipment, on a custom-built HOWE Defender chassis or a commercial chassis. You will have exclusive features like the HOWE automatic pump prime indicator and special HOWE construction which makes a pumper perform better and last longer. Look to HOWE for the finest in fire-fighting apparatus.



Rear view of quadruple combination unit on HOWE Defender chassis for Vinton, Ia. Truck has 750 GPM pump, 200-Gal. Booster Tank, two 40′ 3-section ladders, three 28′ 2-section ladders, one 16′ roof ladder, one 14′ roof ladder, one 10′ folding ladder, 6 pike poles. All ladders and equipment are mounted in enclosing compartments. Also nine large compartments to house portable pumps and other items. Truly a fire truck to save time, manpower and property!

HOWE

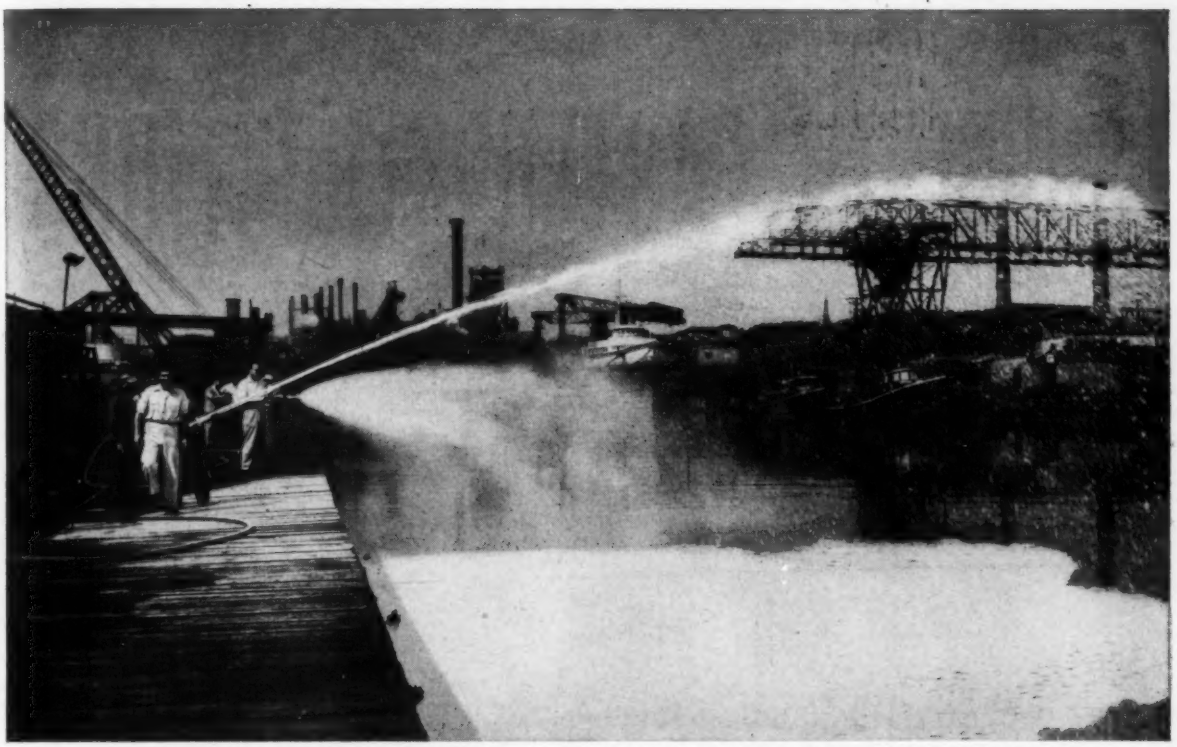
HOWE

MEMBER FAM
(Fire Apparatus Manufacturers Association)

FIRE APPARATUS COMPANY

"dependable fire apparatus since 1872"

Dept. FE6, 1400 West 22nd Street, Anderson, Indiana, U. S. A.



Two methods of discharging Rockwood FOAM include the solid stream (foreground) and the broader FogFOAM pattern. The nozzles used are described and illustrated below. Note the FOAM blanket on the surface of the water.

Covering the waterfront . . . with protection

Versatility is one of the big advantages Rockwood FogFOAM nozzles bring to waterfront fire-fighting. Depending on the type of nozzle equipment, you can discharge either a solid FOAM stream many feet in length, or a highly heat absorbent FogFOAM pattern for shorter distances.

Either way you get a fast covering blanket of FogFOAM that effectively smothers fires in gasoline, benzol and other flammable liquids. And the variety of Rockwood equipment enables you to reach into the interiors of tankers, storage tanks, etc., as well as to cover large, open areas of burning liquids.

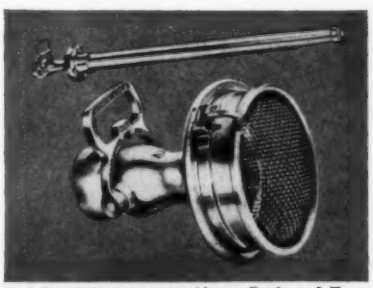
Just three parts of Rockwood Double Strength FOAM mixed with 97 of water forms the quick-acting blanket that flows freely around obstructions, seals off combustible vapors and quickly re-seals if broken.

In your own community, meet the threat of flammable liquid fires with Rockwood FOAM — an outstanding example of how Rockwood engineers water to cut fire losses.

ROCKWOOD SPRINKLER COMPANY

Engineers Water . . . to Cut Fire Losses

This Fast-Flowing FOAM Blanket spreads over flammable liquids, sealing them off and smothering flames. Available in single and double strength for use with Rockwood devices, FOAM saves vital time by its speedy, thorough action — saves cost of use, storage space and shipping costs because it's concentrated.



Two Nozzle Attachments. Above, Rockwood Type FFF FogFOAM nozzle, equipped with long shaper, discharges a solid FOAM stream up to 45 feet distance. Below, with a FogFOAM screen, it discharges a pattern with a range of 30 feet. Suction draws FOAM liquid through a tube at nozzle base.

SEND FOR THIS INFORMATIVE BOOKLET

ROCKWOOD SPRINKLER COMPANY
Portable Fire Protection Division
266 Harlow Street
Worcester 5, Mass.

Please send me your illustrated booklet on Rockwood fire-fighting products.

Name .....

Title .....

Company .....

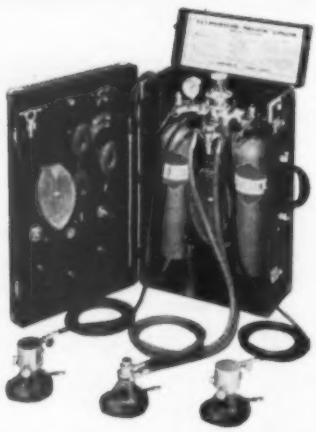
Street .....

City .....

Zone.....State.....

SQUEEZES PAST OBSTRUCTIONS

E & J RESUSCITATOR - INHALATOR - ASPIRATOR



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COUNCIL ON PHYSICAL MEDICINE and REHABILITATION
AMERICAN MEDICAL ASSOCIATION

When partial obstructions will not yield to aspiration, or when the air passages are swollen almost shut, the exclusive E & J feature "Precision Flow Control" assumes life-saving importance in emergency rescue treatment.
With it the operator can quickly find just the exact flow of oxygen that will squeeze past obstructions short of complete blockage to provide full inhalation and exhalation at a *slow but life-saving rate!*

FIND OUT MORE ABOUT THIS VITAL E & J FEATURE . . .
Data and demonstration without obligation.
Write to Dept. 544-7 at address below.

E&J RESUSCITATOR • ASPIRATOR • INHALATOR
. . . first name in Resuscitators

E&J

E&J MANUFACTURING COMPANY
100 E. Graham Place, Burbank, California

Continuous Improvement, then and now

Aerial ladder trucks have progressively improved in design during the past 75 years of fire department use. The first aerial ladders were of wood (Douglas Fir) and mounted on a horse drawn truck. The ladder was hand cranked to raise or lower. Progressive improvements were made through the years; spring operation to raise the ladder; motorized tractor to replace the horses; improved ladder construction and trussing for greater safety.

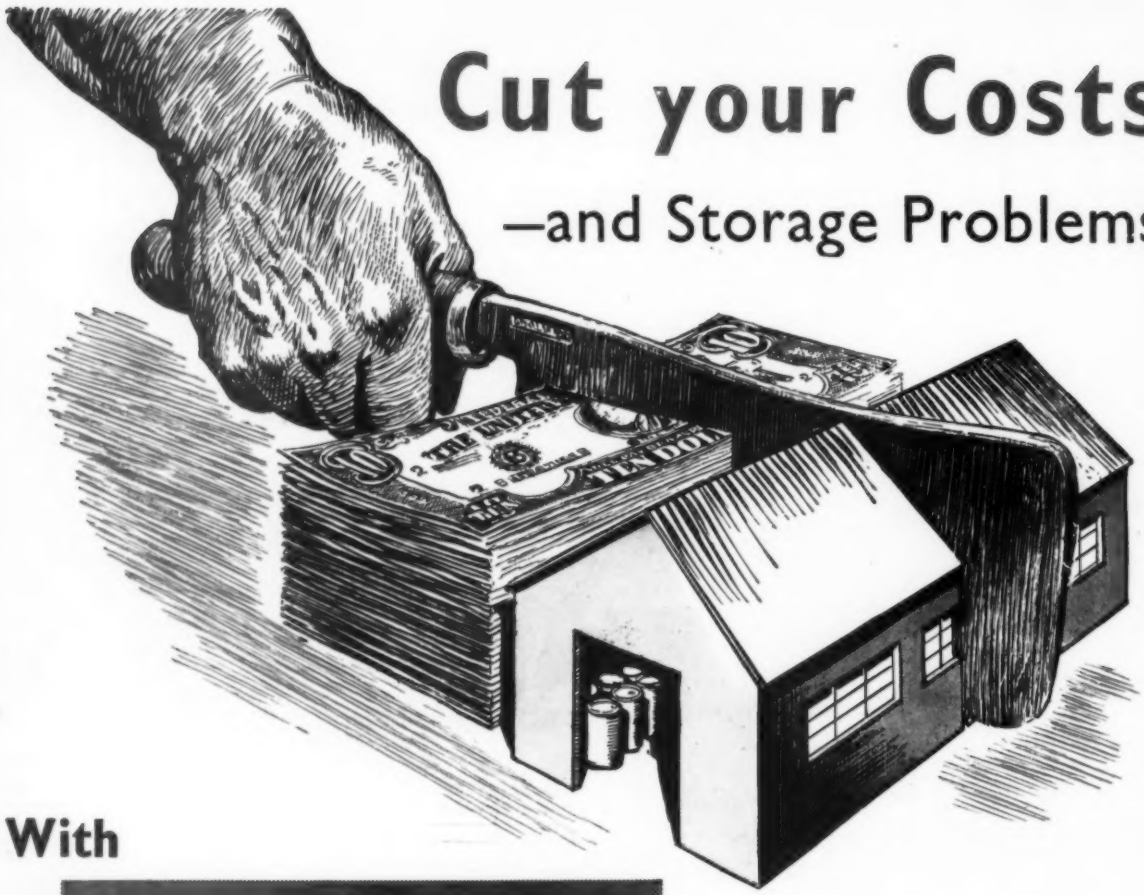
The all-steel aerial ladder was developed to meet the growing shortage of Douglas Fir suitable for building aerial ladders. The American-LaFrance all-steel aerial ladder increased the useful range of aerial ladder utility with important advantages to the fire service: (a) Water tower operation; (b) One man operation; (c) No tillerman; (d) Less room to house; (e) Greater ladder strength; (f) Shorter turns. These are a few advantages of the modern American-LaFrance 4-wheel aerial.

Write for detail literature

• THE WORLD'S FINEST FIRE ENGINES •

AMERICAN LAFRANCE

AMERICAN-LAFRANCE-FOAMITE CORPORATION
ELMIRA, NEW YORK, U.S.A.
LAFRANCE FIRE ENGINE AND FOAMITE LIMITED
TORONTO 9, ONTARIO, CANADA



Cut your Costs

—and Storage Problems

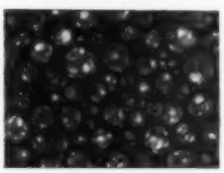
With

Nicerol

3% Foam Compound

THREE GALLONS of Nicerol and 100 gallons of water will produce over 1,000 gallons of Nicerol foam through a mechanical air pump. Changing and replacing strainers is reduced to a minimum, as Nicerol does not form sludge even after long storage. Its pH of 6·8 to 7·3 indicates neutrality, thus ensuring freedom from corrosion in valuable equipment, and in storage drums. A less obvious factor in Nicerol economy is its speed of effective action. Nicerol saved several hundred million dollars in World War II, and is still supplied under contract to several Navies and Air Forces throughout the World.

Magnification X 30



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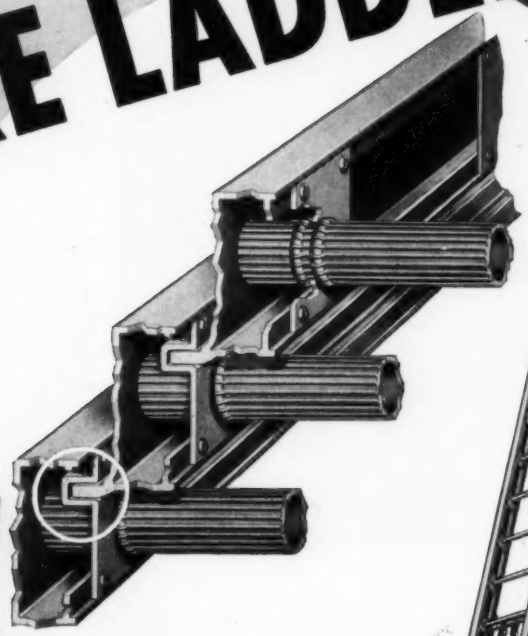

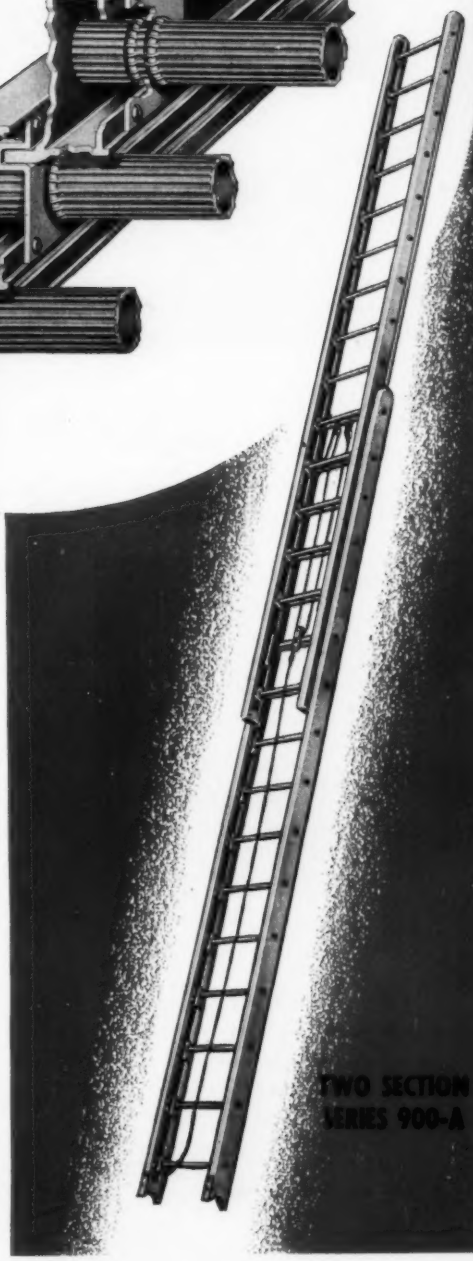

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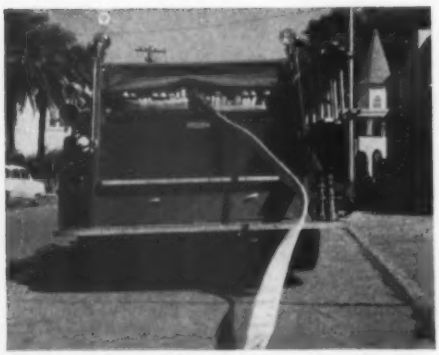
Florida Fire Dept. Reports:

Lighter to carry . . . easier to coil, hose made with "Dacron"* is strong . . . flexible



Hose made with "Dacron" makes fast hose laying easier for the Ocala Fire Dept., because it's light in weight and very flexible. Coiling and racking are easier, too.

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"I like hose reinforced with 'Dacron'," says Chief T. B. Sexton of the Ocala Fire Dept., Florida, "because it's light in weight, rolls up more compactly, and because more of this type hose can be carried on the apparatus." Above, two members of the department show how hose made with "Dacron" is easier to handle in action . . . easier to coil and rack when the job is done.

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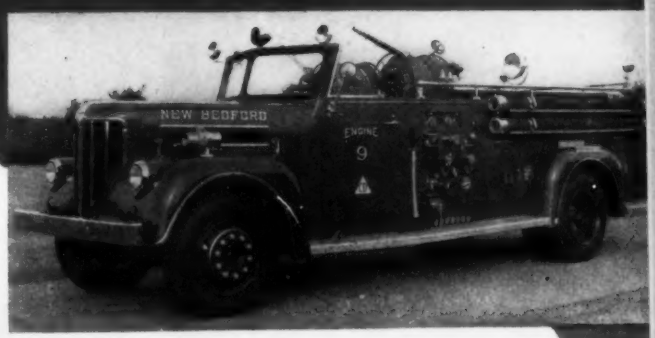

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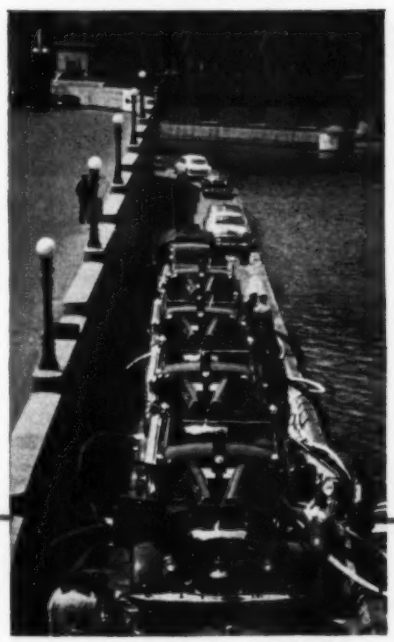

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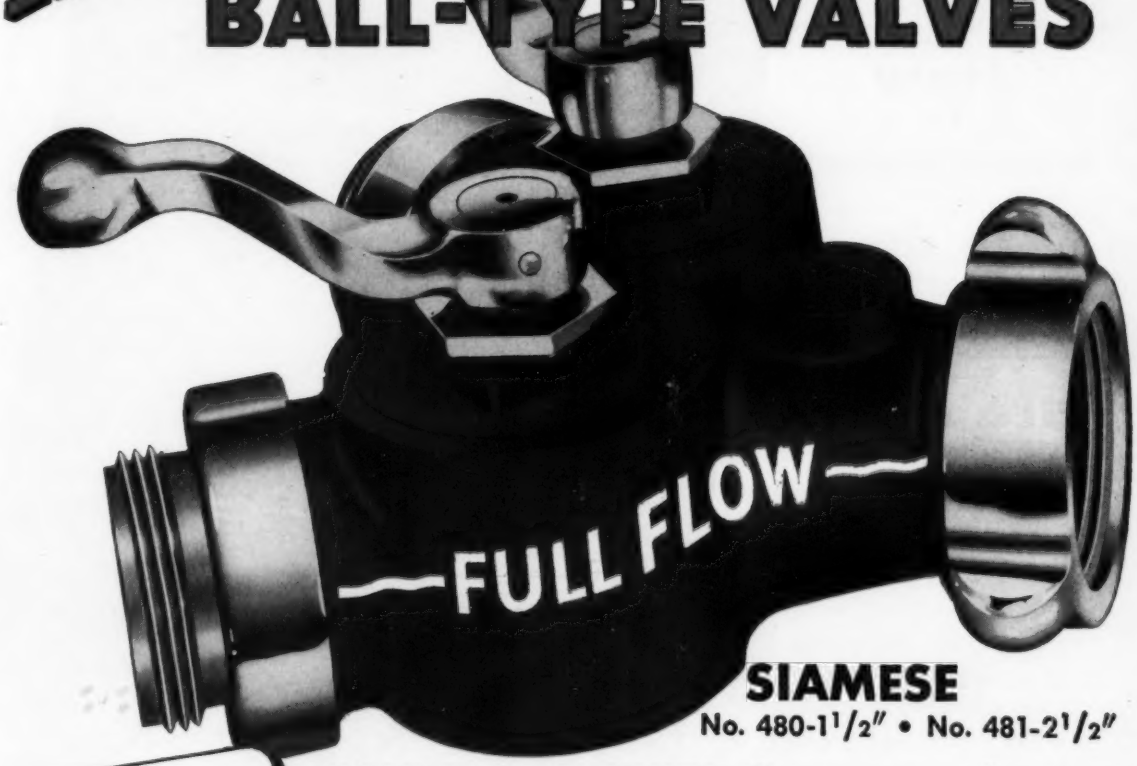

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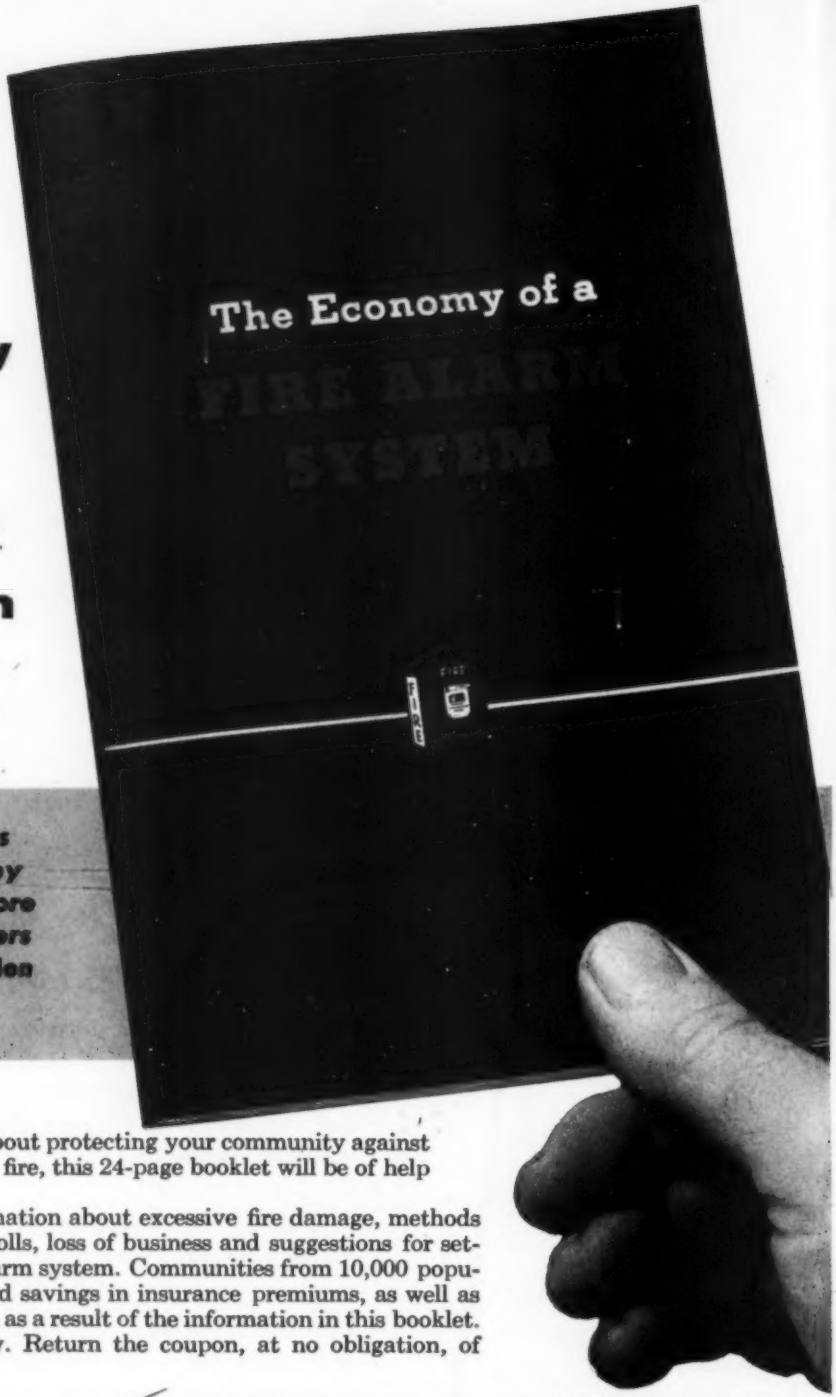

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JUNE, 1954

FIRE ENGINEERING

VOL. 107, NO. 6

With the Editor

Tolls for Fire Apparatus

Several years ago the Fire Chiefs' Emergency Plan of Westchester County scheduled a monthly meeting at Hastings-on-Hudson, that county. The speaker of the evening was to be a fire chief from New Jersey.

Came time for the Chief to appear, but no speaker. As the meeting was about to adjourn, the Chief and his aide, and his red fire chief's car arrived. He explained the delay by saying the police had compelled him to get off the new Hendrik Hudson Parkway because of a standing order that no "commercial vehicles" were permitted on it. His argument with police that he was on official business; that his was far from a commercial vehicle; that he had not known that *fire department* vehicles could not use the Parkway, all were unavailing. He was forced to take a roundabout route to his lecture engagement on firemanship.

That odd ruling was made by New York City's Commissioner Robert Moses. It supposedly has been in effect ever since, notwithstanding the fact that fire apparatus is scheduled to respond over the parkway when called to fight fire in vehicles on that thoroughfare. Taking a leaf from the Commissioner's book, the County of Westchester, north of New York City, prohibits the use of its parkways to fire vehicles, although it has never got around to prosecuting the fire service for utilizing the parkways when firemen are called to emergencies on it, or to extinguish fire along its right-of-way.

The height of something or other was reached when, in planning for the response of suburban and upstate fire forces to New York City in time of enemy attack, notice was again given the suburban fire fighters that they could use the Parkways *only in the event of an actual major emergency.* It would be quite in order to run the convoys over these primary routes *when the bomb drops*—but it is forbidden to use the same routes *for any test exercises or drills.* Ridiculous as it seems, Westchester County, N. Y., firemen, and any others who might be expected to participate in test civil defense exercises in the New York area, must not drill on the highways they will be expected to use when and if the real disaster happens.

To those skeptics who have a hard time swallowing this statement, let them read the instructions sent out to the support area fire forces of the world's biggest city, for no less than four such test responses.

But this isn't all! Consider the sad plight of the Fairfield County, Conn., fire-service. Like Westchester, Fairfield is pierced by the Hutchinson River, Merritt Parkway, one of the major arteries over which fire forces will be expected to travel in the event of sending help to New York City.

Not so long ago an editor of this *Journal,* traveling with Fire Chief Stuart Potter of the Town of Greenwich in the latter's official car, on official business, was stopped at the Greenwich-Merritt toll booth, where the Chief, despite his protests, was relieved of ten cents toll. It made no difference to the toll-keeper whether the Chief was going to a fire or to a meeting—he had to fork over, or go hunt another road. He forked over, but he didn't relish the principle of the thing.

The next, but not the final chapter in this bizarre tale, is now being unfolded. We quote from an editorial in the *Greenwich Time:* "One of the disadvantages of being known as "the millionaire town" is demonstrated by the current hassle between the sovereign state of Connecticut and a remote principality called Greenwich, which apparently has no relationship with the rest of the state.

"Greenwich has a reputation for being wealthy. Greenwich also pays its debts. Now the State of Connecticut is insisting Greenwich pay its just debts, in this case the staggering sum of 60 cents. The State would probably defend its position by saying 'It's not the money, it's the principle.' Which is exactly what First Selectman C. V. Carleton Gisborne says about the ridiculous situation (with a vehement second by Chief Stuart Potter.)

"Why does debt-free Greenwich owe the state 60 cents? Because between the fire apparatus and the police squad, six trips were made through the toll station on the Merritt Parkway. The town must pay what every motorist pays, so at 10 cents a trip, it is simple mathematics.

"The Attorney General's office ruled that only state-owned and operated vehicles are exempt from paying the toll. Our police cars went through the toll station because they were summoned to accidents. The fire apparatus went through to put out grass fires—on state-owned property, if you please. . . . It is far-fetched, perhaps, but what would happen the next time the grass is burning on the 'state-owned' Merritt Parkway and the Greenwich Fire Department refuses to answer the call . . ."

The business of suppression is tough enough on today's firefighters as it is, without states and bureaucrats making it tougher!

Fred Shemwell

Ammonium Nitrate Dangers Told in Newly-Found Report

By PAUL C. DITZEL

The author is indebted to officers of the Long Beach and Los Angeles Fire Departments for their cooperation in preparing this report. Chiefs Frank S. Sandeman and Leonard Foster of Long Beach, Chief John Alderson of Los Angeles and Inspector Don Wilson, also of the Los Angeles Department, were especially helpful. Much of the research for this report was done by Capt. Leonard E. Farrar of the Long Beach Bureau of Fire Prevention, and photo credits go to Capt. Farrar and Capt. Claude A. Conlin, Jr., of the Los Angeles Fire Department for this report of exceptional historical significance.

FIRE chiefs and firemen in industrial centers, especially those whose departments have a waterfront area to protect, are keenly aware of the dangers of handling ammonium nitrate. The now historic disaster in Texas City, Tex., on April 16 and 17, 1947, will always remain a symbol of "it can happen here."

At the time of the Texas City disaster, explosion experts compared it to a similar one in Oppau, Germany, on Sept. 21, 1921, when a concrete silo containing 4500 tons of the chemical exploded. The detonation of this enormous pile of ammonium sulfonitrate (ammonium nitrate-ammonium sulfate) fertilizer salt killed 450 persons, leveled more than 700 homes and caused most of the buildings housing the plant to practically disappear.

Closeup of the synthetic urea building which was demolished and swept clean of cement, bricks and glass.

Police and firemen remove a victim. Note the fire department tank wagons and the ruined city of Oppau in the background.

Although there were many similarities between the Texas City disaster and the one at the I.G. Farban Industries plant in Oppau, authorities have never found a complete explanation of what caused the German disaster.

Recently, officers of the Long Beach Fire Department came across a retired German chemist who shed light on this mystery. He was thoroughly questioned and the subsequent report was placed in the archives of the Los Angeles Fire Department, where it was made available to FIRE ENGINEERING and its readers.

Although the Oppau disaster occurred more than 30 years ago, this report is believed to be the first time that substantial evidence has been uncovered as to the exact cause of this disaster. FIRE ENGINEERING therefore offers it to its readers in the belief that the discovery of the Long Beach and Los Angeles Fire Departments of this significant material should be made available to the fire service as a whole.

First, however, some backgrounding is necessary.

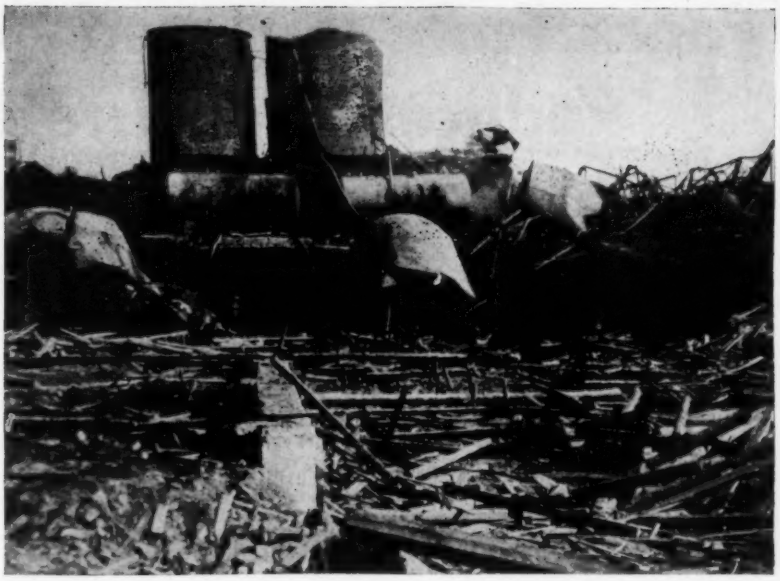
The Farban plant manufactured synthetic dyes, pharmaceuticals and related products and employed about 30,000 people. The plant operated under the Haber process, which employed a direct reaction between atmospheric nitrogen and hydrogen to form ammonia. The synthesis is carried out under extremely high pressures and temperatures. The pressures applied ranged from 3000 to 3500 pounds per square inch at temperatures of 400 degrees centigrade. This Haber process is only successful if a suitable iron catalyst is employed and if all gases entering the reaction are carefully purified. Under such conditions a portion of the hydrogen-nitrogen mixture is converted into ammonia.

The ammonia so formed leaves the reaction chamber together with the unconverted gases and they pass through high pressure water scrubbers whereby the ammonia dissolves in the water while the residual unconverted gases are returned through a booster pump to re-enter the reaction chamber. Another means of removing the ammonia is by subjecting the exit gases from the high pressure reaction chamber to refrigeration, whereby the ammonia liquefies while the residual gases are recirculated.

A large part of the Farban plant served the primary purpose of ammonia synthesis. Under this, the hydrogen was made in an enormous gas plant by means of the water gas reaction. The nitrogen was obtained by air liquefaction, thereby separating oxygen from the nitrogen as a -by-product. Extremely elaborate gas purification systems were involved and occupied a substantial area of the plant.

The purification had to be almost perfect so as not to poison the catalyst

Interior view of demolished building where witness was working at time of blast. Crane (left of center) saved his life. He was thrown under it and completely protected from flying debris which left a layer as deep as 15 inches. This building housed medium sized hydrogen compressors.



Closeup of the nitric acid tanks which were punctured and sent their lethal acid spilling down on top of 100 trapped workmen who were eaten alive.

in the reaction chamber. For example, from the hydrogen the last traces of carbon monoxide had to be removed to prevent the formation of iron-pentar-carbonyl with the contact-mass.

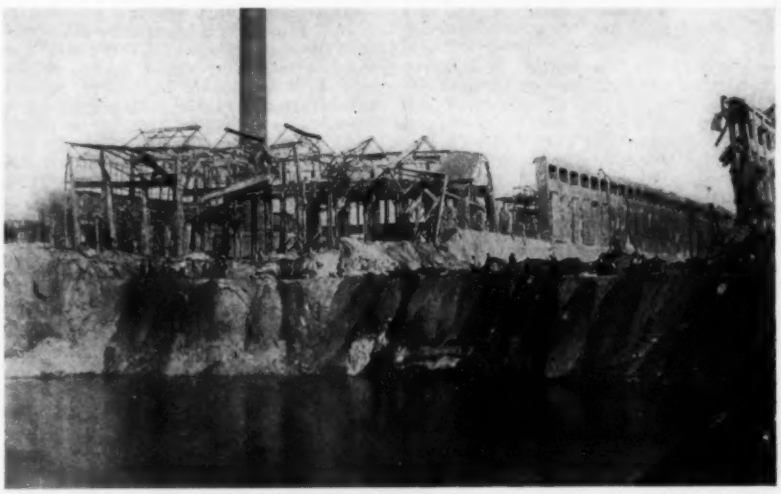
Ammonia, the primary step in nitrogen fixation, was now available for the following purposes: The production of nitric acid by means of the Ostwald process which might either be used for production of nitrogen compounds such as fertilizers and/or for the nitration of organic substances such as toluene or phenol for explosives.

The primary purpose of the plant during peacetime was the manufacture of nitrogen fertilizers. Ammonium sulphate, ammonium nitrate and as a later development, a new type of fertilizer known as a double salt of the both was marketed under the name of ammonium sulphate-nitrate. The reason for producing this product was that it carried a higher nitrogen content than the sulphate. Ammonium nitrate, as such, was not manufactured in substantial quantities because of its possible explosive violence.

Contrary to the processes used in the United States for making ammonium sulphate: blowing ammonia into sulphuric acid to produce the salt, the Germans used an indirect method, resorting to the use of finely ground gypsum and agitating this suspended mixture with ammonia to form calcium hydroxide, a waste product, and ammonium sulphate as the end product.

In making the double salt, one difficulty was encountered. The finished material absorbed water during storage and consequently became lumpy. Since the demand for this fertilizer was seasonal rather than continuous, enormous quantities had to be stored in large silos for months at a time. When the time for shipments arrived, means had to be found to break up the salt into smaller lumps to be carried by belt conveyors into a crushing mill. From there the salt passed through a dryer and finally was loaded by chutes into box cars.

It was a rather difficult operation to break up the enormous mass of salt



This is the gigantic crater caused by the blast. The detonated fertilizer salt ripped a hole 175 yards in diameter and 40 yards deep. One day later the course of the River Rhine changed and filled the crater from underground seepage.

cake in the silo and the only convenient means of doing this was by drilling holes into the salt and planting sticks of dynamite all around the base of the salt pile.

A 60-man crew carried out this work under leadership of a foreman for many years. There had been no previous accidents. It was considered absolutely safe to so handle this product since elaborate preliminary tests under the most adverse conditions showed that the salt could not be exploded itself. All precautions to avoid accidents were taken and the explosive storage was far outside the premises of the plant and well-protected against lightning and saboteurs. Only the amount of explosives used daily was brought into the plant.

Everybody thought it couldn't happen here. But it did happen on Sept. 21, 1921, at 7:31 a.m. Here's the story that probably has never been told before:

The chain of circumstances leading up to one of the most powerful blasts of the pre-atomic age started when the explosive engineer who usually supervised all blastings to loosen the packed chemical was called away from the plant. He had been sent to a subsidiary plant in a nearby city to knock down a large chimney. The foreman left in charge had his own idea on how to modify the time-tested method. A surviving witness who spoke to this foreman 10 minutes before the explosion reported later that the foreman believed his own method would be 25 times as effective as the prevailing one. The foreman, moreover, did not obtain permission from his superior to try it out.

The foreman used large quantities of the most sensitive fulminate of mercury in place of the nitroglycerine charge which was usually employed. Since the powder house was located far outside

(*Continued on page 523*)

Foam From Aerated "Wet Water" Reduces Exposure Hazards

Oil Storage Tank Protected by Coating of "Foam" in Carbide Company Tests

A STAFF REPORT

LARGE scale fire tests of a new type of "wet water foam" applied in a new method to materially reduce the exposure hazard of storage tanks to fire, were conducted on May 6-7 by the Process Safety Department of Carbide and Carbon Chemicals Company, a Division of Union Carbide and Carbon Corporation, South Charleston, W. Va. The tests, which were undertaken by the Fire Research Laboratory of the Company, were witnessed by some 70 representatives of the fire service, National Board of Fire Underwriters, National Fire Protection Association, American petroleum Institute, and fire equipment and fire insurance companies, as well as larger chemical and petroleum manufacturing companies. About the same number of members of Carbide and Carbon Chemicals, which produces the test-product "Unox" and the Unox Company, a Division of McFarland Manufacturing Corporation, Houston, Tex., which distributes it, handled the numerous details of the field and laboratory tests. Operations were directed by James J. Duggan, superintendent of fire protection for the Corporation. Aiding him were Charles Gilmore, Fred Fisher and Walter Baker.

Since December, 1946, the investigation of wetting agents as an aid to fire extinguishment and/or control has been undertaken by the Fire Research Laboratory. The net result was a formula known and commercially marketed as Unox penetrants 1 and 2. These products have been applied to the extinguishment of fires in both Class A and B combustibles and have had wide commercial acceptance as a penetrant.

As investigation progressed, it was found that by aerating the standard commercial penetrant, an unstable foam was formed which very materially increased the efficiency both as an extinguishing and insulating medium. It was to implement these experiments with the new agent, particularly as an insulator against high temperatures, that the May tests were conducted.

The term "unstable" as referred to above, is used as compared to the orthodox commercially available chemical and mechanical foam. These foams usually contain a stabilizing ingredient, form a heavy viscous mat or blanket which is impervious to vapor flow for a period of time, and leave a residue after the water has drained out. The "wet water foam" returns to the original liquid state when break-down occurs, leaving no residue. The water contained in the product solution is sufficient to absorb most of the heat of an exposure fire, it was disclosed by the tests. The foam, if it may be called that, is opaque to radiant heat and is sufficiently stable to extinguish fire in any flammable liquid that is water insoluble, and can be stored at atmospheric pressure and temperature.

The "foam" is a fluid insulation, the efficiency of which is due to its cellular structure, consisting of myriad minute air bubbles.

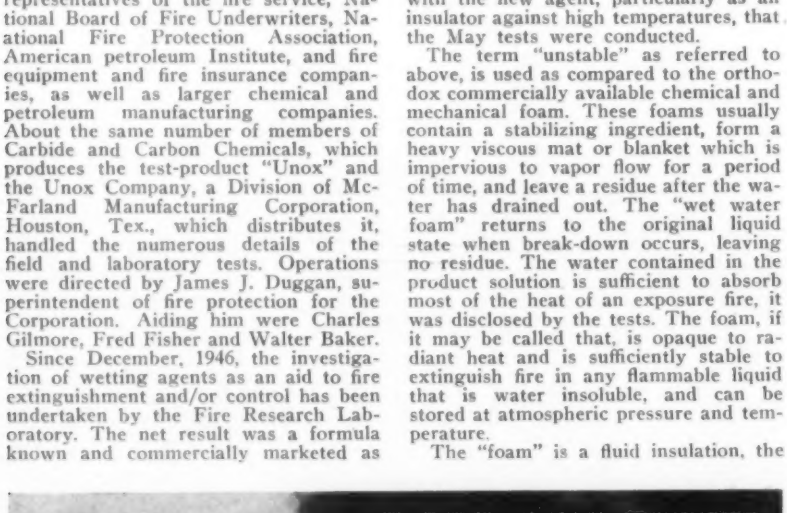
On solids, the extinguishing-action of the foam is three-dimensional: (1) the burning material is blanketed or isolated from air by the foam mat or blanket; (2) the breakdown into water is in direct proportion to the heat to which it is exposed, thereby affording an optimum application rate with sufficient cooling action to extinguish the fire; (3) through its ability to reduce the surface tension of water, its penetrating qualities tend to cause extinguishment, even on surfaces that are water repellent.

The May tests were intended to provide data for the application of the new wet water foam in large scale systems for the protection of structural members in the plants of the Carbide and Carbon Chemicals Company. It was hoped that the burning tests would provide valuable heat input data by carefully recording temperatures, volumes, etc. Equipment manufacturers were invited to submit their standard equipment which could be evaluated for this purpose, and their representatives, as well as leading authorities in the field of fire protection, were welcomed.

The major tests were conducted on the Fire Research Laboratory grounds, using a regulation 55,000-gallon storage tank, situated in a diked area, to which kerosene (as the burning solvent) was piped under pressure. Three major tests were conducted on this tank, the first two designed to try the efficacy as an insulating and extinguishing agent of 1% and 2% foam solution, and the final test to develop the heat input of the tank contents when subjected to the same type of severe fire, but without any cooling or insulating protection. A series of tests using the foam product in varying solutions was held in a shallow 25-ft. diameter tank, with standard "C" foam chamber, with and without Moeller Tube. In still another out-of-doors test, water spray as well as foam was discharged by sprinklers onto a hot open pit fire.

A number of indoor laboratory experiments were made to demonstrate the manner in which the foam breaks down into tiny bubbles and permeates kerosene; also to illustrate its penetration as an extinguishing agent.

In the first test a dike fire was extinguished with 2% Unox foam by application at one point in center top of a 20 ft. diameter tank. Total dike area: 250 sq. ft.; runoff diked area 380 sq. ft.; net burning area, 2,120 sq. ft. The fuel was kerosene; volume fuel in diked area, 660 gal.; depth of fuel (maintained by pumping), ½-in.



"Wet water" foam protects tank against heat from surrounding fire in tests at South Charleston, W. Va.

The extinguishing agent (2% by volume) was applied at the rate of 0.1 gpm/s.f. of net burning area. Foam expansion ratio determined by previous lab. test was 9.6; extinguishing medium flow rate, 212 gpm.; pressure at inlet (top of tank) 64 psi; orifice diameter in foam maker, 1.251 in.

Pre-burn time was 0.1 min.; foam application stopped at 8 min. 26 sec. Total extinguishment time, 7 min. 26 sec. Total volume extinguishing medium used, 1,600 gal.; total volume concentrate, 26 gal. Total application time at 2% was 4 min. 40 sec. Total extinguishing time, using 1% solution was 2 min. 26 sec.

Wind at the time was NW 11-15 mph, with gusts up to 30 mph. It was noted that the overflow of the wet water foam first spread out to leeward over the diked burning surface, and that extinguishment of the burning surface first commenced in this area, then extended around the tank working to windward. Some effect of wind was noted on the windward side where drops of foam liquid were thrown into the air. Notwithstanding this fact, there were no areas of the tank left uncovered by the flowing foam.

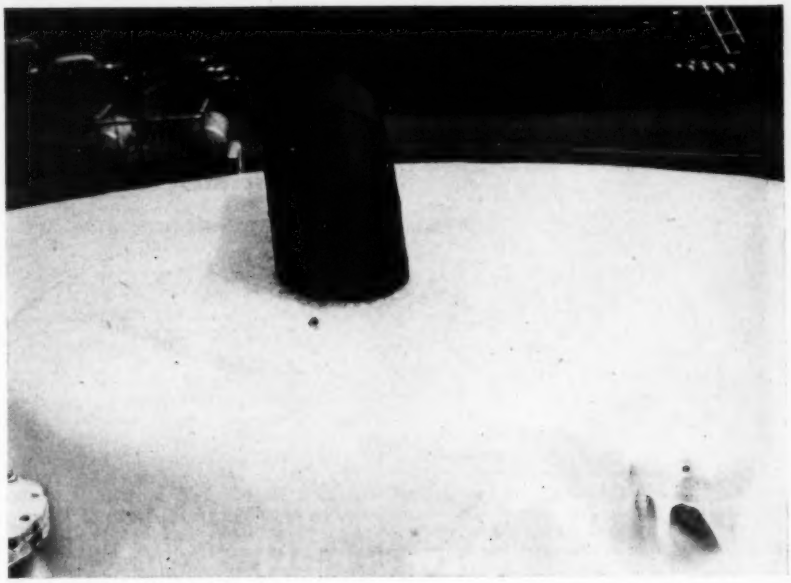
The second test was the same as No. 1 except that 1% solution was applied. Data on the tank is as follows: diameter, 20 ft.; height 14¼ ft.; shell thickness ¼-in.; nominal capacity 55,000 gal.; total exposed surface area (side and top), 1,829 sq. ft.; surface area wetted by contents, 1,514 sq. ft.; height of water level in tank, 24¼ ft.; volume of water in tank, 56,642 gal.; weight of water in tank, 472,394 lbs.

In the opinion of Mr. Duggan, the 1% solution did better than the 2%. Intense heat radiation was noted by the observers and protective sprays and hose lines were employed to cover adjoining property. Temperature rise was taken by instruments surrounding the tank. After 35 min. application in this test, the solution was changed to 2% to note the difference in coverage of tank, and the extinguishing action in the dike. Heat input ratios in all these tests varied but little between the 1% and 2%, indicating the protective cooling qualities of the compound. There was apparently no noticeable difference in the extinguishing action on the diked burning surface. Windage had some effect on this detail. Some observers were of the opinion that the 2% provided the better "blanketing action" in extinguishment, and the heavier solution was somewhat less affected by the strong wind.

It was noticed that when the fuel supply was cut off, and the fire allowed to burn out, there was marked boiling action of the dike contents. In spite of this, the 1% built up a fairly good blanket in places.

In this test the final average temperature of tank contents was 29 deg. C; total average temperature rise of tank contents, 5.3 deg. C. Average percentage of tank exposed to fire, approx. 50%. Total fuel used, 4,935 gal.; Average area of tank covered by solution, 100%; total volume of water used as cooling medium, 6,300 gal.; total volume of concentrate, 63 gal.

In the final test, the same type fire was built in the dike but no protective coolants were applied. This test was intended to determine the heat input to the contents of the tank and the destructive effects of fire on the tank itself.



Close-up of single point application of "wet water" foam on top of tank.

The delivery funnel was removed from the tank top.

Temperature readings were taken both at the top of the tank itself, and in the drums around the installation (these drums contained water). It was noted that the vapor temperature rise was rapid and before the test was completed, it went completely off the recording instrument. Rate of water temperature rise was slower. There was no explosion, nor was the top of the tank apparently injured.

Three other tests were conducted to demonstrate the application of the wet-water foam using foam chambers and Moeller tube. These were held in a fire pan, 25 ft. in diameter (491 sq. ft.) into which fuel was pumped.

In the first of these tests, 2% solution was used through a standard "C" foam chamber installed centrally above a 3 ft. deep sump in the fuel pan. The fuel was kerosene. After 1:10 min. preburn, foam was applied and the fire extinguished in 1 min. 24 sec. The depth of the foam blanket was 1½-in. plus. Total extinguishing medium used 105 gal.

Another test was conducted using this same chamber and the fire extinguished in 1 min. 28 sec. The next test involved application through a standard foam chamber equipped with a Moeller tube. Approximately 500 gallons of kerosene were ignited. About the same pre-burn was allowed, and this fire extinguished in 1 min. 56 sec. Extinguishing medium used was 108 gal.

The possible outdoor use of this type foam on a metal pipe rack located over a pit was shown. Types of sprinkler heads were installed in the rack above this pit, one having 8 jumbo nozzles to discharge about 100 gpm of foam solution. The other system had 29 spray heads which delivered about 229 gpm at 270 psi. No fire was extinguished by the water sprays, but the effort to put out a hot pit fire with the foam solution, using only its 8 heads, was not entirely effective. The heat ignited the aluminum paint on the steel columns and the wind blew away the foam, with the result that two center columns buckled and hand fog lines had to be employed to cool down the metal work. It was disclosed that, whereas the spray sprinkler heads provided coverage for these vertical columns, the foam heads were not so located as to do so.

The technique employed for the tests was simple. The solutions of the liquid wet water were passed through a McFarland proportioner (designed by Mr. Duggan), to produce a foam about ten times the volume of the original solution. The tests demonstrated this coolant provides maximum cooling efficiency when applied to actual fires. It has high insulation and heat reflecting value, since it is white and contains water to absorb most of the heat generated by the fire.

The prescribed rate of application essentially lessens the heat input rate by about 70 per cent and proportionately should lessen the possibilty of damage to equipment and storage tanks that are exposed to fires.

Water was provided by a 500 gpm OCD portable pump through the proportioner; the foam maker was fabricated by Carbide and Carbon Chemicals Company; Foam chambers were National Foam design. Portable nozzles used in the tests were National Foam.

April Fire Loss

Estimated fire losses in the United States during April amounted to $77,933,000, it was reported by the National Board of Fire Underwriters.

According to Lewis A. Vincent, NBFU's general manager, this $77,933,000 loss represents an increase of 15.7 per cent over losses of $67,362,000 reported for April, 1953, and a decrease of 8.1 per cent from losses of $84,821,000 for March, 1954.

Losses for the first four months of 1954 now total $328,175,000 an increase of 9.3 per cent over the first four months of 1953, when they amounted to $300,198,000.

These estimated insured losses include an allowance for uninsured and unreported losses.

Fire Service Ventilation in Principle and Practice

Part VIII — The Relation of Fire Streams to Ventilation (With Emphasis on Water Fog)

By ROI B. WOOLLEY
Assistant Editor

Editor's Note: This Chapter in the series on ventilation by Chief Roi Woolley deals with a phase of this fundamental of fire control hitherto little explored in this country, namely, the relation of water streams whether in straight unbroken form or as spray or fog to the processes of ventilation.

Although no other nation's fire service has used fine sprays and fog in fire extinguishment as has this nation's firefighters, and although our firemen generally have a fair understanding of the principles of fire control by means of finely divided water particles, the fact is that the part water in such form plays, or can play in venting contaminated atmospheres, is still much of a mystery. Not a few of our leading fire fighters can see no connection whatever between the use of water in fire extinguishment and in promoting (or retarding) ventilation.

The author fully realizes the extent to which he has laid himself open to possible controversy in directing attention to this little discussed factor of venting. Fortunately for him, however, there are fire departments in this country which *are* employing water in broken form—let's call it "water fog" for the sake of expediency, for clearance of smoke, gases and heat, from areas affected by fire.

By drawing on the experiences of some of these fire chiefs and students of fire suppression, including the laboratory findings of the Joint Fire Research Organization of the British Department of Scientific and Industrial Research and Fire Officers' Committee (Fire Research, 1946-1952), he has been able to present the subject not entirely as theory but to buttress the theoretical with the practical.

If his findings and observations do no more than to direct the thinking of progressive American fire fighters to the possibilities and limitations of water streams in furthering fire extinguishment through more effective ventilation, we will consider this installment of the treatise on ventilation well worth while.

AT the risk of some repetition let us say that any study of the relation between the use of water as a means of ventilating a building, and as an agent for extinguishing fire, should be prefaced by a few simple facts on the combustion of fire.

In earlier chapters of this study we pointed out that one of the greatest obstacles to fire attack and extinguishment (and rescue) are heat and smoke which are products of combustion. We described the fundamental laws that govern combustion and the generation, movement or transfer of these unwelcome products. It is unnecessary, therefore, to further review here all those factors which create and propagate fire, and cause it to spread, except to remind readers that smoke, which is released in the burning of ordinary combustibles, consists of a mixture of gases and fumes, or vapors, in which are suspended particles of foreign matter, notably carbon, tar and ash.

These foreign materials, some so infinitesimal that the small magnifying glass cannot detect them, are frequently toxic or irritant to a degree and affect the human respiratory system and the eyes, depending upon the nature and extent of the materials burning. It is known the particles are held in suspension, and carried by the vapor-gas mixture on air currents, and that they tend to reflect light rays.

In general, the impenetrability or opacity of the smoke and gas mixtures depend upon the degree and extent of these foreign mixtures in the air. Thus there is greater percentage of unburned carbon and other elements in the smoke given off by a Class "B" fire than that of any other. The heavier and coarser the smoke particles, the more difficult it is for light to penetrate the smoke pattern, and the harder it is for a fire fighter to operate in such contaminated atmospheres.

The movement of these charged, contaminated atmospheres depends upon a number of factors, such as the rate of heat rise in the area, the admission of oxygen to the burning fuel, and the kind and extent of ventilation practiced, both manual and mechanical. Usually, but not always, rapid movement of the atmospheric contents of the area are an indication that (1) extreme heat is being built up, or that (2) something has happened to create drafts and/or channels for the charged contents. Every experienced fire fighter knows that the more stagnant, inactive and confined the "load" of these unwelcome products of combustion, the more difficult and dangerous it is to press the fire attack.

As has been said before, there is nearly always *some* atmospheric circulation even in a confined space of a building involved by fire. This is due primarily to the currents caused by expansion of heated gases, the tendency

Photo courtesy Hugh Walker

Openings at both ends are needed for fog ventilating. The effect of a heavy discharge of water fog into the rear louvre of a dwelling attic is shown by the burst of flame and gases spurting from the front louvre of this same house, ignited during the fog nozzle tests at the Memphis FDIC early this year.

for such gases and smoke to move to upper strata and for the cooler, fresher air to seek the level of the fire.

A fundamental of ventilation is to encourage and speed the clearance of these heated, smoke-choked atmospheres and their replacement with fresh air. These procedures have been described in previous chapters of this series, dealing with vertical, or top, and horizontal, or side, and below-ground level ventilation.

Under favorable conditions, overhead or side ventilation, will permit fire fighters to advance their lines to the interior fire areas. However, there may be conditions where because of humidity, or type of building, or lack of openings, ventilation is retarded, and extreme methods must be employed to break down and move the smoke-vapor contents of affected areas. When this occurs, mechanical or a artificial ventilation may have to supplement, or take place of manual ventilation. And this is where water fog, or as some term it, water spray, enters the picture.

It is an accepted fact that water applied to a fire in the form of a solid stream is less effective (under average conditions of attack), than where the water stream is broken into finely divided particles. Most fire officers know that the limited extinguishing action of water applied as a solid stream is due primarily to the lessened exposure surface of the water to fire, in relation to its volume. Water is effective as a fire extinguishing agent because of its great ability to absorb heat. The speed with which a given volume of water will absorb heat is in direct ratio to the amount of surface of water which is exposed to the heat it is to absorb.

Just as the ability of water to absorb heat is increased by its application in the form of small droplets, *so the ability of water to attract and collect, or absorb the minute carbon, tar and ash carried by the smoke.* Thus we see the fog stream having an affinity for the unburned, toxic products of combustion as well as for the heat of the fire. We see also that when finely divided water absorbs the heat and is converted to steam, something else happens which bears further upon ventilation.

When water changes to steam it expands 1,700 times. This stream displaces and dilutes the oxygen content in the atmosphere and so decreases combustion, with corresponding reduction of heat, which is another way of saying it is performing some of the functions of ventilation. It also tends to increase visibility.

This action means increased movement of air currents (fresh and foul air), which may in turn further accelerate clearance of the charged areas. In the process some of contaminants, such as heavy soot, etc., are inclined to be carried along in suspension, on the moving air currents.

The application of water, therefore, has a direct bearing on ventilation by affecting the currents of air which are carrying the contaminants of combustion in suspension. It has an even more direct bearing on the clearance of foul atmospheres by its affinity for, and its ability to pick up certain of these contaminants and to "wash them out of the air." This is particularly true where the water is finely broken up, and where complete conversion to steam does not occur.

Evidence of this fact may be found in checking the run-off at fires where the water may be found to contain considerable quantities of soot, ash and other residue. But more of this later on.

Ammonia fumes from broken pipe in New Orleans brewery, in January of this year, made it impossible to enter the building without complete protection. Water fog has a great affinity for ammonia fumes, and absorbs large quantities upon contact.

Water applied as a straight stream admittedly will set up certain air currents; the more finely divided the water stream (up to a certain point), the stronger the air turbulance and greater the currents.

Not so many years ago it was not uncommon to hear practical fire fighters maintain that a stream emanating from a charged fire hose line carried with it certain amount of life-giving air. Firemen of those days, and even to this time, are told to get their nose down as close to the pipe as they could in the generally accepted belief that by so doing they could hold their position longer.

Actually, no appreciable amount of air comes from the nozzle. All the firemen are doing is to take advantage of the movements of air currents, set up by the stream itself, which tended to drive the heat and fumes away from his face and eyes. To him, the improvement of the control nozzle, which provided a coarse spray at will, was a welcome addition to the science of fire fighting. This actually brought the nozzleman no greater fresh air through the pipe but it did provide some greater relief by increasing the extinguishing power of the stream, and drawing more air along the floor to the location of the nozzle.

The modern fog nozzle has merely carried this basic idea still further, with the notable difference that in the field of high velocity fog, there is an increase in the amount of air moved with the water stream.

A less direct application of water fog to ventilation is in the formation of a protective curtain, or shield, for men on the line. In such form not only does it provide the cooling effect necessary to extinguish the fire, while gathering unto itself quantities of impurities such as soot and ash, but it provides the sort of protective "umbrella" behind which the fire fighter can press his attack on the fire or to effectuate complete ventilation.

It may conceivably be that he can employ the fog pattern discharge to reach and open vents to further ventilating some distance removed from the blaze itself, in the course of his advance. Where he has no respiratory protection, the water fog discharge may be his *only* recourse to ventilate as he goes along behind its protective pattern.

As one advocate of the use of water fog expresses it, "When you use the right kind of water fog you are *combining ventilating and extinguishing* to a degree impossible with any other form of water application." And this officer and others who have been interviewed emphasize another point—that the effectiveness of water-fog ventilation is increased where the fog is treated with a wetting agent.

Tests by the British, although limited in extent, indicate not only the greater extinguishing power of treated water, but its greater "affinity" for impurities of combustion. If this be fact, it indicates an attribute of wet water of which this nation's fire service is not familiar, and one which opens new fields for investigation and research.

One point has been established, as is attested by some of our later case histories: using this form of ventilating by water fog, it is frequently possible to entirely evacuate an area of its charged poisonous atmospheres by setting up air currents which carry in suspension the smoke, heat, and gases that hinder the advance in fire attack. The speed and safety with which this can be done may depend on the ability to provide openings or vents through which the products of combustion may be driven, the degree and extent of the fire encountered (radiated heat, etc.) and other unforeseen obstacles.

Nor should it be forgotten that water fog is no panacea for all ventilation problems. Used ill-advisedly it can be dangerous to fire fighters, as is also indicated in the case histories that follow.

Case History 1: Sub-Basement

Fire originated in the sub-basement of a skyscraper less than a block from the nearest engine company which had shortly before received a new pumper equipped with a navy type 2½-inch fog nozzle. Neither officers nor crews had received training in the use of the nozzle, but officers were generally well

Ventilation of a fire of this type is a difficult operation. The use of large fog streams at front entrance would probably have been helpful, if large opening, or openings, were available for release of smoke and gases at rear.

informed in the extinguishing qualities of water fog.

The fire, involving Class "A" and "B" combustibles, gave off heavy, irritating smoke and fumes as well as considerable heat, making entry into the sub-basement (which was possible only by elevator and through a winding hallway, and a small stairway) impossible. Company not then being equipped with masks, the rescue unit was special called.

Meantime, after being turned back in the effort to make the sub-basement by means of the stairway, the first-due company officer shut down the line, substituted the new all-purpose fog nozzle, and then led his men into the basement, and down the stairs to the lower level.

Describing this operation ofterwards, he reported: "It was surprising how, once we opened up that fog nozzle, we were able to work our way to the sub-basement. We had no trouble pushing the heat and gases ahead of us, so it seemed. When we made the lower level we could see the fire, as well as feel it, and we were just about to give it a knockout belt, when I heard a yell, and felt more heat on my neck. I turned, and it looked like we were almost surrounded by fire."

The officer told about the crew beating a hasty retreat behind the coverage of the fog nozzle, but not until all of them had suffered some burns and from smoke exposure. "We were just able to make it back to the upper level," the officer said, "but it was a narrow escape and I don't know as I want to monkey with those fog nozzles any more."

The fire was extinguished, following arrival of the rescue company with breathing apparatus.

The lesson taught by this fire was that especially where a single line attack was made on a sub-surface fire some opening should have been provided for the escape of the charged contaminated atmospheres being driven forward by the water fog pattern. It was disclosed that the only other exit to the area, beside that through which the company had attacked, was a door to the elevator passageway, and this was closed. The result was obvious: the trapped smoke and gases ahead of the fog stream suddenly whipped around the crew and almost cut off the retreat of the firemen.

The lesson also illustrates the importance of proper training in the application of water fog, and the use of fog nozzles; singly and in parallel.

Case History 2: Test Dwelling Fire

Tests conducted jointly by the New Haven and Hamden, Conn., Fire Departments, Oct. 11, 1945, demonstrated the combined extinguishing and ventilating power of water fog.

A condemned 2½-story frame house was the subject. The main test was to extinguish a large fire within the structure using water fog only. Considerable combustible material was piled into the center room of the first floor and excelsior placed in a second-floor room and attic. Plaster and lath portions were opened between floors to permit fire to spread; windows were still in place.

Two large roofs, an alcove and kitchen occupied the first floor and three rooms and bath, upstairs. A front stairway led to the second floor and a 14 x 30-in. trap door opened into the attic.

Following priming on all floors with gasoline, fire was started on the first floor. Thirty seconds later the entire first and second floors were alight; flames were sweeping out of windows on both floors and outside clapboards were burning.

The fire was fought with two 1½-in. and one 1-in. water fog nozzles. Pressure at nozzles was approximately 100 PSI. One line with two men was advanced through the front door straight through downstairs to the kitchen; the other 1½-in. line was taken up the stairs to the second floor. The third (1-in.) line backed up the one on the ground floor.

Water fog was first applied to fire 1 min. 16 sec. after ignition. In 17 seconds fire in the first floor was practically out. Fire was extinguished in the second floor and attic 1 min. 4 sec. after start of operations. The three inside lines were then used to overhaul and extinguish glowing embers, and all water was shut off 3 min. and 14 sec. after start of attack.

It was noted that when water fog was applied to the main fire (first floor) there was an almost instantaneous quenching effect, and the fire on the outside, lapping out of first floor windows, immediately died down. At the rear of the house and two side windows that had opened under the heat, a burst of heated gases, smoke followed by flame occurred almost immediately after the line was opened on the first floor.

In operation of both large lines, the crews experienced no discomfort, although they faced heat sufficient to melt glass fixtures. Although windows were closed or boarded up at the start of the fire, and none were opened by firefighters, the heat broke out enough of them to afford egress for the smoke, and gases, pushed along by the quick conversion of the fog to steam on contact with the hot fire, and by the movement of air set up by the strong fog pattern.

Test 3: Dwelling Basement

One of the other tests held in this same house was to extinguish a cellar fire by advancing a line through the heat and smoke down a basement stairs with no more protection than a single fog nozzle.

A large quantity of wood was piled in the front part of the cellar, which had the usual interior wooden stairway, exterior stair and hatch covers, and half-windows (either boarded or the glass in place).

Ten gallons of solvents, including gasoline, etc., was used to prime the contents, and fire was ignited by a torch thrown through a window. After about 2-min. pre-burn a 1-in. line with fog nozzle was advanced down the stairway by two men. The water fog discharge proved insufficient; 30 seconds later a shift was made to a 1½-in. nozzle, extinguishing the major part of the blaze in 2 minutes with complete extinguishment one minute later.

The 1-inch nozzle was used 3 min. at 50 PSI, delivering 12 GPM (total of 36 gal.); the 1½-in. was used 2 min. and 20 sec., at 100 PSI and delivered 55 GPM for a total of 138 gals. Total water used to extinguish the hot, smoky fire was 174 gals.

Firemen on the line reported that the 1½-in. nozzle was entirely adequate and they felt no heat advancing down the stairway. There was practically no runoff on the floor. The author, as a judge, was able to collect sufficient droplets, however, to observe some unconsumed black particles in the water but whether these had been picked up by the droplets upon contact with the charged atmospheres, or during runoff *after contact* with the burning material, could not be determined.

This test demonstrated that notwithstanding buttoned-up condition of cellar, and no immediate ventilation of the area by windows or stair (except through cellar stairway door leading into kitchen), the crew was able to advance line through heat and smoke to kill the fire.

Poughkeepsie Case Histories

Fire Chief Irving Merrick, of the Poughkeepsie, N.Y. Fire Department, whose studies of the characteristics of water fog in exinguishment and ventilating date back to 1943, cites a number

of cases in which water fog was used by his force to vent charged areas.

Tire Re-Capping Plant: A tire re-capping plant located in the basement of a large gas station having a concrete ceiling. The only openings were two small windows and a large ramp on one side of the building and a small escape hatch on the opposite side.

While this fire was being knocked down with fog lines through the windows, a 2½-in. fog nozzle was directed up the ramp *to the outside*, rapidly dissipating the heat and smoke, to permit quicker extinguishment and overhaul. This fire consisted mainly of rubber tires which indicates the smoke problem faced by the firemen.

A & P Super Market: This occurred on a Sunday afternoon. Fire was in the meat cooler and processing room. Store completely filled with heat and heavy smoke, making it almost impossible to locate the seat of the fire. Top venting had little or no effect when employed, so a large 8 ft. x 12 ft. window in front of store was knocked out and one 2½-in. fog line was used for venting *out of this window*. In a very few minutes easy entrance was made, the fire located and extinguished.

24-Lane Bowling Alley: Two fires in a 24-lane bowling alley provided proof of the value of water fog as a ventilating agency. The first fire was in a fireproof basement used for refinishing the pins. Room was totally involved on arrival of department. One 1½-in. fog line was placed in the cellar window for venting. *This was accomplished entirely from the outside of the building.* A 1½-in. fog line has very little back pressure and can be reversed in a window for venting purposes. A second 1½-in. fog line then was taken into the basement by way of the inside cellar stairs with little or no difficulty. Again, the thing that was noticed was the almost complete lack of high temperatures in this concrete-enclosed area.

The second fire was in an un-excavated part of the building underneath two of the maple alleys. Upon arrival, the entire building was heavily involved with smoke. Top venting could have been done by cutting holes in the roof but this damage was saved by employing two 1½-in. fog nozzles *out of two rear doors* while the floor was removed and the fire extinguished. This was an example of where considerable damage was averted by using water fog to vent.

Small Mattress Factory: This was fairly well involved upon arrival of the department, so much so that the fire had vented itself. After the fire was brought under control, the firefighters faced a serious problem of overhauling due to the thick, acrid fumes being given off by the debris, and the need for opening up much material. In this instance, several 1½-in. fog lines were used, *being directed out of the building*, which allowed the men to work with comfort and speeded overhauling. (Author's Note: In some cases, where the equipment is immediately available, mechanical air movers are employed for this purpose, either to supplant or supplement water fog.)

A Chief Comments

Chief Merrick sums up his department's use of water fog in venting in these words:

"We do not employ it (fog) to replace top ventilation; however, many times both can be used to better advantage. When top venting has little or no effect, lateral venting with fog generally is quickly accomplished.

"Fog in fire extinguishing will do some venting itself; however there is seldom a building fire in Poughkeepsie but what we do some degree of venting with fog due to its ability to quickly relieve the building of high temperatures, smoke and gases, thereby allowing us to overhaul and extinguish the fire under better working conditions. It removes the heat and smoke from rooms, attics and cellars in a matter of seconds.

"If properly used, there is no possibility of excess water damage. However, there may be times under severe conditions that a fog nozzle will have to be used inside a building to assist heat and smoke along passageways to the fog nozzle that is venting out through door or window. Some experience is necessary in employing fog for ventilation. It should always be discharged to the outside of the building. If nozzle is held too far out the door or window, it will not ventilate properly; and if it is placed too far inside the door or window, it will cause excessive water damage.

"In our eight years experience, we have not had any injuries due to backdrafts or other causes in ventilating with fog. There is some discomfort to the men operating the nozzle, but strange as it may seem, it is not as bad as it looks. However, at times when conditions are really bad, the men employ self-contained masks while venting with fog.

"In using fog nozzles for venting, we have found very little difference between the 2½-inch size and the 1½-inch size, so with very few exceptions one or more 1½-inch fog nozzles are the ones we now use. As I have said, we use fog venting on most every inside fire of any size."

Method of Application

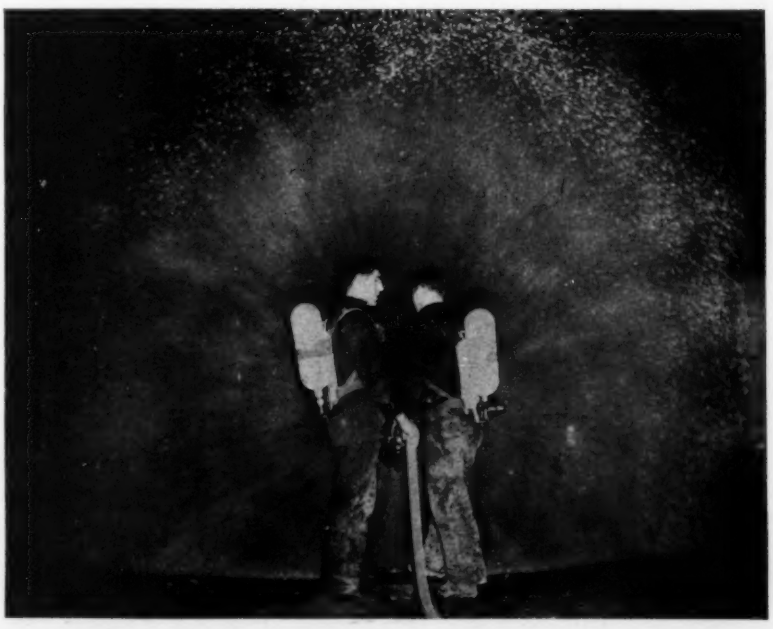
It should be repeated that the most effective ventilation by means of water-fog is possible only where some opening or openings have been made in affected area, toward and through which the smoke heat and the gases can be cleared. Without these outlets, as has been pointed out in case histories, effective ventilation is difficult and may only be accomplished with a considerable attendant water damage.

Although the small all-purpose nozzles on the booster lines (1-inch) are very good for fighting small fires, and have the advantage of quick stretch and easy operation, the nozzle discharge and fog pattern and other characteristics may be too limited for the task of venting called for. A factor apparently that has not been sufficiently studied is that of using these small appliances, particularly with the extension applicators, to cover and protect personnel who are engaged in opening up. It has been said that many lives could have been saved had firemen who were attempting to ventilate either a structure or a transport (truck or box car), operated under protective cover of a fog stream, even if only the smaller size.

The low velocity extension applicators may be put to good use to rid hard-to-get-at spaces of charged atmospheres. They are invaluable in connection with fires in cock lofts, ceilings, voids, cellars, chimneys and "unventable" rooms.

As in fire extinguishment by water fog, its use in ventilating calls for specialized technique. Fire fighters cannot just wade into a heavily charged area behind a good fog nozzle and expect to do an effective ventilating and extinguishing job. We have stated some of the imponderables which affect venting operations. And when it comes to venting by means of water fog much depends upon how the fog is applied

(*Continued on page* 509)



Fog can be used to ventilate out-of-doors, too. Here, Oakland, Cal., firemen with breathing apparatus ready, employ a fog nozzle to absorb ammonia fumes from air near leaking tank car. Note the size, shape and structure of this fog pattern .

CANVAS AND ASBESTOS BLANKETS AID IN CONTROL OF TIRE FIRES

Tests by Nebraska Fire Prevention Department Produce Interesting Results

A Special Report

Editor's Note: **The following report, for which we are indebted to E. C. Iverson, Nebraska State Fire Marshal, comes at a time when the fire service is concerned with the increasing hazards of fires in loaded transports, particularly in populated areas. It is also pertinent because it is issued at a time when the American Trucking Association is studying causes and control of truck fires through a special committee of the munitions carriers and other groups of ATA.**

The use of fire-resistive blankets on tire fires, as described in these tests, opens the door to further experiments.

ONE of the several major problems facing the trucking industry and fire service is that of truck tire fires. One such fire was recently permitted to burn out of control, causing considerable property damage and public discussion, to the extent that the Honorable Robert B. Crosby, Governor of the State of Nebraska, felt it necessary to call a meeting of those responsible for the safe transportation of these vehicles. The Governor requested the State Department of Fire Prevention to be present at this meeting to offer all possible assistance. Because the Department was charged with this responsibility, it was decided to conduct a series of tests seeking information, if any, which might be of value to all concerned.

On February 10, 1954, a series of fire tests were conducted on truck tires to learn if such fires could be prevented from entering the cargo by the use of hand extinguishers, flame-proofing material and/or asbestos blankets.

Four tests were conducted using 11:00 x 20 truck tires and tubes mounted on rims placed under a platform constructed of 2" wooden members to simulate the underside of a truck trailer or box. The underside of this platform was treated with two coats of fire retardant chemical and one application of a protective undercoating. The tires were placed under this mock truck body to reflect actual wheel and tire mountings as to spacing and clearance.

Two tires, dual mounted, were used. The tires were ignited with excelsior and allowed to pre-burn until well involved. The test was conducted with a wind velocity of 17 miles per hour which increased the rate of burning.

Temperature readings were recorded by Professor W. F. Weiland, Mechanical Engineer, University of Nebraska. An optical pyrometer, a thermocouple and a potentiometer were employed in taking temperatures.

TEST NO. 1.

Two 11:00 x 20 tires and tubes mounted on rims were ignited with excelsior while wind was blowing at a velocity in the neighborhood of 15 to 17 miles per hour. The tires were permitted to become well involved. A 25 lb. dry chemical extinguisher was used which extinguished the flame in three minutes. An 8 oz. 10' x 10' canvas, treated with fire retardant chemical, was placed over the tires immediately following application of the extinguisher. Re-ignition occurred but the flames were subdued by the canvas covering which cut off the oxygen. The heat charred several places in the canvas, which was removed after five minutes. Following removal of the canvas, re-ignition of these tires did not occur, probably due to the fact that the fire was insufficiently deep seated.

The temperature of this tire fire, as recorded by Professor Weiland, was 2,100° F. The thermocouple had been placed on top of the simulated truck bed to record the temperature rise which might be transmitted to the inside of a truck trailer exposed by a similar fire. The thermocouple indicated no temperature rise, pointing up the fact that heat travels very slowly through wood planking.

The undercoating applied to protect the fire retardant paint against road hazards burned very rapidly and aided combustion. It is felt that, if fire retardant chemicals are employed under a truck bed, some other means of protection of the fire retardant against road hazards should be used, possibly a metal plate or shield.

TEST NO. 2.

Same two tires were used, ignited with excelsior, and allowed to burn for a 4-minute pre-burn. Tires became well involved with a fairly deep seated fire resulting. A 20 lb. dry chemical extinguisher was used, knocking down the flames in approximately 2 minutes. Tires were immediately covered with another treated 8 oz. canvas of approximately 10' x 10' dimensions. Canvas was left over tires for 4 minutes. No visible flames developed while tires were covered with canvas, but heat charred canvas in several places which caused holes to appear, indicating some types of fire resistant treatments are undependable and any canvas or other material so treated should undergo tests before being placed in service.

Re-ignition occurred shortly after canvas was removed. The optical pyrometer recorded this tire fire as having a temperature of 2,200° F.; while the thermocouple again indicated no temperature rise on the upper side of the wood planking, probably for the same reason as outlined in Test No. 1.

TEST NO. 3.

Same two tires used and ignited with excelsior and allowed to burn for 4 minutes. A 2½ gallon loaded stream extinguisher was used which extinguished the fire in 2½ minutes and no re-ignition occurred. This, being the third fire test with these same tires, resulted in the tires being frayed and the fire became deep seated in the cords. This test supported our opinion that water is probably the best extinguishing agent for tire fires.

Optical pyrometer recorded a temperature of 2,100° F.; while thermocouple continued to record no temperature rise.

TEST NO. 4.

A new pair of 11:00 x 20 tires were used, ignited with excelsior and given an 8-minute pre-burn. No extinguisher was employed in this test. An asbestos blanket approximately 10' x 10' was placed over both tires when the temperature reached 2,350° F. The blanket was tucked around the tires and left for 15 minutes. Flames were visible around the edges of the asbestos blanket, but due to lack of oxygen, the flames were kept under control. At the end of the 15 minutes, a 2½ gallon water pump tank was applied to the tires by directing the hose stream under the blanket. The water, thus introduced, generated considerable steam, cooling the tires and rim. Following this application of water, the asbestos blanket was removed and re-ignition occurred at the base of the tires.

Set-up for fire extinguishing tests on truck fires.

Use of dry chemical on tire fire.

Conclusions

These tests were limited in scope, primarily due to inclement weather, but from a practical point of view, we feel certain any truck tire fire can be controlled and confined within the tire area for a reasonable length of time without igniting the truck trailer or truck body. To do this, we feel the following will be necessary:

1. The underside of the truck trailer or truck body shall be perfectly tight, no cracks or openings to be permitted, and the entire undersurface to be protected with fire retardant chemicals or some equally fire retardant material. Fire retardant materials should be applied to all joints, etc. before flooring is laid.

2. Each truck shall be equipped with a hand extinguisher of not less than 25 lbs. dry chemical, 2½ gallon loaded stream, or 5-gallon properly winterized water type extinguisher, and an asbestos blanket not lighter than 8 oz. and 8′ x 8′ in size which is ample to completely cover two wheels of the size used in the tests.

3. No attempt should be made to remove the tire/tires or protective blanket until fire department arrives.

4. A driver training course in the proper care and handling of fire extinguishers and protective blankets should be instituted.

5. All drivers of hazardous-cargo-carrying trucks shall be instructed to never move a burning truck into a built-up area and, should a fire be discovered while the vehicle is within the confines of any built-up area, driver shall, unless fire can be extinguished within 30 seconds, make every effort to drive truck to point of safety where no danger to life or property will result.

Note: The underside of this treated mock-up truck bed after being subjected to four severe fire tests ignited in the cracks between the various planks comprising the bed where there was failure to receive proper application of the fire retardant chemical. The only damage done to this planking was charring with no ignition. We further believe two truck tires well involved in fire can be controlled through the use of an extinguisher similar to those recommended and an asbestos blanket for at least 30 minutes and possibly longer, which should be ample time in most areas for drivers to receive fire department help for further extinguishment. Also we are of the opinion that by following the procedures outlined, damage to cargo can be avoided or materially reduced.

Onondaga County Dedicates New Radio System

New York's Onondaga County volunteer fire department mutual aid radio network was officially dedicated March 1, with officials of the county, the city of Syracuse, and New York State witnessing a demonstration of the new FM network, supplied by GE.

A radio dispatcher on continuous duty in the Mattydale Fire Department, headquarters for the county's mutual aid program, handles calls for assistance from any of the county's 54 volunteer fire departments, or the city of Syracuse.

The central dispatcher can use the two-way radio system to dispatch any of the 36 volunteer departments now owning 48 two-way mobile radio sets. Ernest Holmes, county fire coordinator, expects about 10 more volunteer departments will add mobile radio equipment during the next year.

The central transmitting and dispatching equipment was purchased by the county, but each department buys its own mobile radio sets. The system was first placed in operation last spring, when 30 volunteer departments were equipped with radio.

Electronic "tone" controls developed by GE engineers, allows the dispatcher to actually sound the sirens at some of the volunteer departments from his desk at Mattydale.

At present, he can sound sirens at 10 departments. Most of the remaining 36 radio-equipped departments are presently installing the remote control equipment.

A special radio receiver at each department receives the electronic tones. When the receiver at each department receives the correct combination of tones, it causes a relay to operate the siren.

As an example, the North Syracuse department calls the Mattydale central dispatcher for mutual aid. The central dispatcher can push a button on his desk, and via the tone system, sound the siren in Liverpool. The first volunteer to arrive at the Liverpool fire station would hear the dispatcher giving instructions over the radio, and would answer.

The county-wide radio system employs a 250-watt FH transmitter, located atop Onondaga Hill. It is operated by the central Mattydale dispatcher via a high-frequency radio link. Gasoline driven generators automatically supply power to the transmitter or the dispatcher's radio link in the event of a public power failure.

A 60-watt standby transmitter will be installed soon at the Mattydale Fire Department, to take over in case the Onondaga Hill transmitter fails.

Most county volunteer departments now radio-equipped also have the latest GE loudspeaker system incorporated with the radio equipment. This can be used to amplify messages so that they may be heard at a distance from the radio-equipped vehicle.

Blanket is placed over burning tire.

Paid Fireman Can Collect

The Fire Department Relief Association of Livingston, Montana, and the State Auditor and Ex-Officio Commissioner of Insurance, Helena, Montana, recently settled the question, "may a paid city fireman injured while answering a rural fire call, draw disability payments from the Fire Department Relief Association?"

The purpose of the statutes providing for fire department relief associations is intended to benefit the fireman and his dependents, it was disclosed. A fireman member to be eligible for sickness or injury benefits must have incurred his sickness in line of duty. Section 11-1926, R.C.M., 1947, reads as follows:

"Disability pension. Each and every fire department relief association, organized and existing under the laws of this state (Montana), shall pay disability pension, out of any moneys in the association's 'disability and pension fund,' to each and every member of said association who has become injured or disabled by reason of sickness or injury contracted or received in line of duty, in an amount which shall be equal to one-half (½) of the sum last received as a monthly conpensation by such injured or disabled member for services rendered the fire department of the city, or town wherein such association has been formed. Provided, such association may at any time thereof, increase or decrease the said 'disability pension' whenever the financial condition of the association's 'disability and pension fund' shall warrant such action; provided further, that no member of said association shall be entitled to receive said 'disability pension' so long as he may be receiving an allowance or award under the Montana workmen's compensation act; provided, further, that no increase shall be effected as will increase the said 'disability pension' to an amount in excess of a sum equal to one-half (½) of the monthly salary last received by the member; provided further, that no decrease shall be effected unless the balance in the 'disability and pension fund' is less than one-half (½) of one (1) per cent of the taxable valuation of all taxable property within the limits of the city, town, or municipality. In case of volunteer firemen such disability pension shall in no event exceed the sum of seventy-five ($75) dollars per month."

It is well established that pension statutes should be liberally construed in favor of the intended beneficiary. Klench v. Board of Pension Fund Commissioners, 79 Cal. App. 171,249 Pac. 46; Hurley v. Sykes, et al., 69 Cal. App. 310,231 Pc. 748; State v. Riles (Del.) 62 A. (2d) 236. The duties of a fireman are to follow the instructions of his superior officers in the performance of some of the actual physical work in the fighting of fires and in the work incident to that occupation. Mason v. City of Los Angeles (1933), Cal., 20 (Pac 2d) 84. A fireman answering a call in a neighboring city at the order of his superior has been considered as acting in "line of duty." Young v. Town of Kortright (1935) (N.Y.) 278 N.Y.S. 180.

The only restriction of the pension statutes is that the injured or disabled fireman must have suffered his disability in line of duty. Insofar as an individual fireman is concerned, his duties are to follow the instructions of his superiors in carrying out the "work of his employment." Meager v. Bishop 56 Inc. App. 455, 103 N. E. 492. In other words, whenever a fireman is engaged in the work that fire departments are generally called upon to do, he is acting in line of duty.

It is not incumbent on the fireman prior to answering a call to make an independent determination of facts ulterior to his principal job purposes, i.e., the fighting of fires. As was stated in the case of State v. Riley, supra:

"Members of a police or fire department are often required to perform duties which place them in great danger and every encouragement should be given them to faithfully discharge the duties which are assigned to them."

It is therefore my opinion that a paid city fireman member of a Fire Department Relief Association, is entitled to payment from the association for sickness or injuries incurred in line of duty while answering a rural fire call.

ARNOLD H. OLSEN
Attorney General

RUPTURED OIL STORAGE TANKS GIVE FIRE FIGHTERS TOUGH JOB

Radiated Heat at Santa Fe Springs Blaze Slows Down Operations

OVER 200 Los Angeles County fire fighters, working shoulder to shoulder with oil refinery firemen, fought a half-million dollar refinery blaze that roared out of control for two hours on May 18th at the Rothschild Oil Co., Santa Fe Springs, Calif.

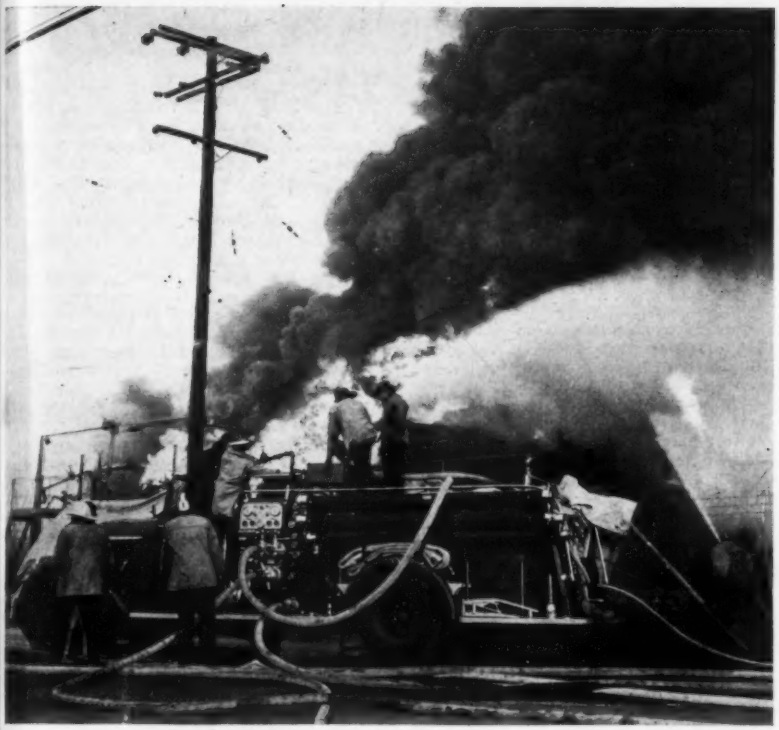
The flames, involving 338,500 gallons of gasoline, shot more than 100 feet into the air and the vast column of black smoke which could be seen in two counties, brought the usual crush of the curious to the scene. Fences and police, however, managed to keep them from approaching too close to the searing flames, which, as tanks let go, sent some fire fighters and plant workers running for safety.

Cause of the initial blast and blaze is not disclosed, but is believed to have been a stuck vent. The solid acre of boiling flames was touched off by a tank filled with 2500 gallons of casing-head gasoline which burst its lid at 3:45 A.M. and filled the tank area with fumes of highly volatile gas.

Refinery fire fighters, quickly on the scene, were unable to confine the fire. With the first blast, some employees of the company ducked under their desks in the fear that the blow signalled a bomb attack. The shock of the bombliki blasts, which followed as butane fumes ignited, was heard five miles away.

With local crews unable to confine the dangerous blaze, ouside aid was

Refinery workers and fire fighters take off as gasoline lets go at the Rothschild Oil Co. plant in Santa Fe Springs, Cal. Resultant costly blaze gave over 200 firemen long, hard dangerous struggle.



One of 18 County fire units which responded on three alarms, operating on roaring fire at Rothschild oil plant, Los Angeles County.

summoned from Los Angeles County, which dispatched more than 200 firemen and equipment to the scene. Forces of other private and public fire fighting agencies also were marshalled from every point in the area.

Firemen said the drifting butane fumes were touched off at two locations by open flames. Instantly, the entire sector burst into a momentary single body of fire. This in turn touched off eight gasoline storage tanks, each filled with 42,000 gallons of gasoline. They flamed fiercely, defying the efforts of 18 fire companies, which rolled on three alarms from as far away as Puente.

For more than an hour firemen fought the tank blaze from a distance of 100 to 150 feet, or as close as they could get to the blistering heat. Meanwhile all available nearby stocks of foam were mobilized for the struggle and, at the height of the blaze, over a dozen hose lines were employed to wet down exposures and blanket and cool the gasoline-fed flames. Fog nozzles were also brought into play, mainly to provide protection for fire fighters endeavoring to come within striking distance of the fire. Chief efforts were directed to prevent extension to the 40 tanks containing 5,000,000 gallons of petroleum in the rest of the farm, and the towering refinery. In this effort the fire fighters were successful.

Experienced oil field fire crews called it a miracle that not one of the 60 or more workers on the job at the time of the blast and fire was seriously injured. Of the 10 or more men working within 50 feet of the first tank that "went up," only one was injured and he hurt his hand when scrambling over a high fence.

One fireman, Captain Tom Showers, suffered minor burns on his feet when scalding hot water and gasoline mixture bubbled over an improvised dike at one point in the struggle.

At 11:30 A.M., as firemen began to play chemical foam on the flames, one gasoline tank sagged and split, spilling its unburned contents into the flames around it. In the renewed gust of fire, more than 300 firemen, plant workers and newspapermen made a dash for safety.

This split tank of gasoline brought a new crisis in the fire, according to County Fire Chief K. E. Klinger, in charge of operations. If additional tanks melted down and dumped their load to add to the water-gasoline mixture already close to the brim on a tiny dike, the whole area would be inundated ankle deep in a sea of flaming gasoline. In a final and successful effort to control the blaze, special refinery crews, some protected by hose streams, joined county firemen to bolster the brimming dike.

California Highway patrol motorcycles paced the truckloads of foam, dispatched by radio from across the county. This marshalling of forces had the fire controlled by 1:00 P.M. Destroyed, in addition to the tanks of fuel, were a brick testing laboratory more than 150 feet from the main fire; a loading dock and shed; the superintendent's office and the control quarters at the crude distillation plant.

County Fire Captain George Figley of the Fire Prevention Bureau, and George Hartsfield, refinery superintendent, reconstructed the fire's start, which came when the 2500 tank of casinghead gasoline blew up. They believe a safety valve failed to operate. This explosion released the butane gases, heavier than air, which flowed along the ground to two points of ignition. One at the north was a flame under a boiler; the other to the south, was an open flame in the plant laboratory. When the gases ignited, the eight tanks in the southwest corner of the yard caught fire. Of the eight, two were ruptured by explosions.

New Station at Malibu Beach

A new $56,000 fire station to protect the famed Malibu Beach Colony was opened by the Los Angeles County Fire Department in April.

Station 88 is located just off Pacific Coast Highway near the main gate of the colony in which many movie stars and other notables live.

Ceremonies at 88's were brief, with County Fire Chief Keith E. Klinger, Dep. Chief John Duncan, Asst. Chief Harvey Anderson of Division 2, and Chief Des. Barton of Battalion 6 in attendance.

A sidelight of the opening was when Capt. Robert Robb received a Dalmatian pup mascot from Actor Allen Jenkins.

Engine 88 is presently a 1943 pumper, with a 750 g.p.m. pump, a road pump, and a 400 gallon tank. However, Chief Klinger said that as soon as the department receives the first of its 15 new triple combinations around July 1, the 750-gallon pumper probably will be replaced with a 1000 g.p.m. pump and 1000 gallon tank. The big tank is needed in the area because of the lack of a good water supply.

Station 88 is the second new house opened this year by the L. A. County F. D. Earlier a new station was opened in Bellflower to house Engine 23 and a new 85-foot aerial on order. **Truck 23** will service the southeast portion of the county, including the fabulous postwar development of Lakewood.

Two new stations are presently under construction for the fast-growing department in the fast-growing Southern California area; another is being completely remodeled; and an antiquated house is being torn down and replaced with a modern station for Engine 69 in Topanga Canyon.

At least a half dozen more stations are planned for the near future and a total of $558,770 is budgeted for construction alone this year. CLIFF DEKTAR

L. A. County F. D. Photo

Captain Robert Robb holds Dalmatian puppy, gift of Actor Allen Jenkins, at opening of new Los Angeles County Fire Department Station 38, at Malibu Beach Colony. At right is County Fire Chief Keith E. Klinger, while at left, Deputy Chief John Duncan looks on.

MEMPHIS EFFECTIVELY USES HEAVY DUTY FOG STREAMS

Prove Their Worth in Controlling Large Fires; Mounted on Ladders and Salvage Trucks

By Richard M. Adelman
Memphis Fire Department

THE MEMPHIS, Tenn., Fire Department, under the direction of Chief John C. Klinck, has for over two years conducted tests with large calibre fog nozzles. These tests, including full scale "live" structural fires, proved conclusively that heavy fog streams can be used to good advantage on well advanced, deep seated structural fires.

As a result, several pieces of specially designed equipment have been built, and large calibre fog nozzles adopted as standard equipment.

Two new salvage corps trucks, recently placed in service, were designed and built in the department repair shops. These units are mounted on commercial truck chassis, and are equipped for both salvage work, and use as a deluge truck.

They are each equipped with a deck gun, fed by a six-inlet manifold located at the rear of the truck. Four preconnected 100-foot lines of 2½-inch hose are carried on each truck. Each of the lines is controlled by a shut-off valve located on the manifold.

The deck gun is located on the body of the truck, immediately behind the cab. Each deck gun is equipped with a JN-200 Mystery fog tip, capable of discharging 800 gpm of fog at a 30-degree fog pattern.

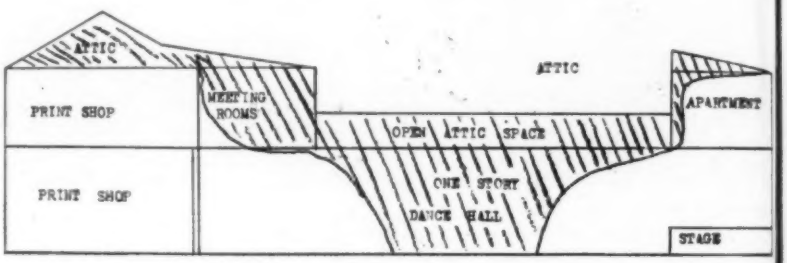
Straight stream tips are also carried, along with salvage covers, portable pumps, and miscellaneous equipment. At least one of these units responds to every alarm in the city.

Two other older salvage corps trucks have also been equipped with deck guns and large fog nozzles.

These four trucks also carry the J-200 fog tips, which can be used on either a ladder pipe supplied by a 3-inch line, or can be direct connected to a 2½-inch line.

Recently a serious fire occurred in Memphis, in which heavy fog stream application rapidly brought the fire under control.

On April 3rd, a one and two story brick joisted building at 190 Jefferson suffered a $65,000 loss in a fire of undetermined origin. The building was constructed in 1894, and was approximately 60 x 250 feet in area.



Shaded section shows portion of building destroyed.

Occupancies included a printing company, occupying part of the first and second floor; a book shop; offices; a one-story dance hall in the center of the building, and an apartment at the rear of the second floor.

Interior walls were largely of lath and plaster finish, with part of one wall built of brick, but without protected openings. The roof was tin with a composition surface, laid on wood sheathing, on wood rafters and beams.

The fire was discovered by a night patrol of the Memphis Fire Department, who turned in the alarm by radio at 3:25 a.m. First alarm companies found the dance hall heavily involved, with flames shooting from most the the first floor windows.

At 3:27, a second alarm was sounded, and at 3:33, a third alarm was turned in. A total of nine engine companies, three trucks, two salvage companies, a water tower, and light truck responded. Firemen were under the command of Chief John C. Klinck, Deputy Chief W. L. Bilbry, and Deputy Chief Edgar Lovell. Several district chiefs also responded to the alarms.

The fire was initially attacked with three hand lines. However, as soon as the 2nd and 3rd alarm companies arrived, lines were laid to two 100-foot aerials, equipped with ladder pipes and J-200 Mystery fog nozzles. These nozzles were each fed by two 2½-inch lines, and discharged approximately 500 gpm, at a 30 degree fog pattern.

One of the aerials was located near the front of the building on the west side, while the other was placed on the east side of the structure.

A salvage corps truck equipped with a deck-gun and JN-200 fog nozzle was placed on the east side of the building near the front. This deck-gun was fed by three 2½-inch lines.

Shortly after the 3rd alarm was sounded, the roof over the dance hall collapsed, narrowly missing a number of men working in the building. After this occurred, crews were withdrawn from the inside, and streams were operated from the outside, until the fire was brought under control.

Heavy fog streams from the two aerials and the deck-gun, brought the main body of the fire under control in a short time. One result of using these streams was the noticable lack of radiated heat.

The two streams used near the front of the structure quickly brought under control the fire burning in the attic over the front section of the building. The other aerial was used to control the fire in the rear 2nd story apartment and attic. This aerial was also used to sweep the fire, burning through the center of the building, with a heavy fog stream.

In less than 30 minutes, the fire had been controlled enough to allow crews to re-enter the building and complete extinguishment.

Although the rear and center of the structure suffered heavy fire damage, the front section had relatively light fire damage. Fire damage to the contents of the front section was also light.

A total of 17 lines were used to supply three 2½-inch fog streams, four lines with 1¼-inch tips, two ladder pipes, and one deck gun. The department's water tower responded to the fire but was not placed in service.

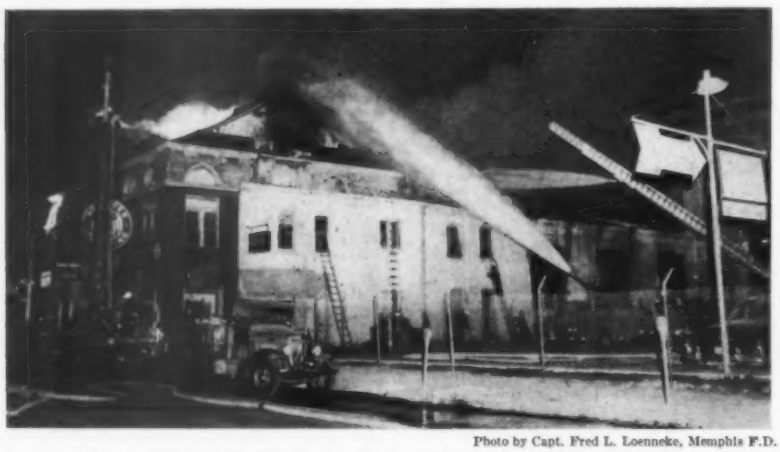


Photo by Capt. Fred L. Loenneke, Memphis F.D.

View of the east side of the building, showing heavy fog streams from one of the salvage corps trucks, and from Truck 2's ladder pipe.

HAVANA, CUBA, FIRE DEPARTMENT KEEPS PACE WITH THE TIMES

Modern Apparatus and Radio Enable Relatively Small Department to Protect City of Million Population

By Adolfo Dominguez, Jr.

IF fire losses are any indication of the efficiency of a fire department for a city of its size, Havana, Cuba, with its million population and its numerous fire hazards, must have an outstanding fire force. Certainly, measured by standards in effect in the United States, the department is small for the task that faces it.

Brigadier Jesus Balbuena, Chief, Havana Fire Department.

The first known record of the Havana Fire Department dates back to 1795 when citizens used hand pumps and pails to fight fires, although there was no organized fire brigades. It was not until 1835 that such organization came into being by Royal order, under the name "Honorable Firemen of Habana" (at that time Cuba belonged to Spain). The Royal order also established a tax which was paid by all owners of buildings to support the "Honorable Firemen." Actual control of those early firemen was vested in the Spanish Army.

The first "engines" were hand operated and there were only two of them. Candid historians state that these "engines" were more suitable for cleaning the streets than they were for fighting fires. There were a few feet of what was called "hose" and a limited assortment of axes, pikes, ladders, etc.

At that time, alarms were given by church bells, bugles and whistles, which sounded only "districts," wherein the fire was supposed to be located, but gave no exact location.

In 1855 the corps was reorganized and 600 men added. This total was increased to 900 in 1858. In 1872, the first steam, horse-drawn pumping unit was imported from England. This was named "Virgen de los Desamparados" and later on the name of "Camisetas Rojas (Red Pull-Overs) was given to the corps, thus forming the Municipal Fire Corps commanded by Lieut. Col. Andres Ziencoweich. He was later killed in a terrific explosion while fighting a fire in the "Isasi Hardware Store" in which explosives had been illegally stored.

As this corps was insufficient to provide adequate protection to the city, the "Bomberos del Commercio" (Voluntary Corps) was organized in 1873 by Col. Aquilino Ordonez, and almost immediately these volunteers had the opportunity to justify their existence, at a big fire at the Tacon Market.

On May 9, 1876, a new fire alaram system was inaugurated, and on October 30, 1877, the corps, or department, started using the telephone. It is said the City of Havana was the first Spanish speaking country to use this system.

It should be remembered that these corps were entirely volunteer. They were joined in the early days of this century through the intervention of Governor Charles E. Magoon (at that time Cuba was a protectorate of the United States). The new corps was paid partly by the city and partly by insurance companies, and public donations.

In June, 1915, the corps was placed under the control of the City of Habana (Havana) and in 1916, the Mayor purchased the first motorized fire equipment, replacing the old steam pumpers by 7 motorized fire engines, 2 hook and ladder trucks, and 2 chemical trucks.

There are today 7 fire stations spread over the city, together with a well equipped workshop where they not only repair and maintain apparatus in good condition but where also they build some of their own tank trucks (an essential owing to the water problem).

The present equipment consists of 7 triple combination units; one pumper;

(*Continued on page* 520)

Chief Officers of the Havana Fire Department: Commander Manuel Garcia (seated, left); Colonel Sinesio Cuesta, Assistant Chief, and Brigadier Jesus Balbuena, Chief.

Headquarters of the Havana, Cuba, Fire Department.

One of Peshawar's fire trucks. Seated with the driver is K. R. Archibald, Chairman of the Fire Board of Cortland, N. Y.

American Officials Visit Pakistan

Cortland, N. Y., will be known as the American community which set in motion the effort to further cement relations between this nation and Pakistan. High point of the drive, instituted by Cortland's Mayor Dr. Robert H. Kerr, and Chairman of the Fire Board, K. R. Archibald, was a goodwill mission which saw to the entertaining of five citizens of Pakistan in this country, and in which a delegation of Cortland citizens headed for Pakistan.

Through a governmental grant, a group of the five Cortland residents was invited to be guests of Pakistan for several weeks in March-April of this year. In the party were Mayor and Mrs. Kerr, Donald B. Ingersol, Leighton A. Hoper and Mr. Archibald, who is with the New York Telephone Company.

As part of the official reception, the group was invited to witness demonstrations by the original fire departments of Kerachi and Peshawar. The latter city is populated by 125,000 people, largely quartered in brick, cement and stone buildings, or mud huts. The fire department has an army-like trained contingent of some 50 fire fighters who live in barracks surrounded by a large open area, where they practice and drill daily. Their equipment consists of two hard-tired 250 gpm pumpers, one equipped with auxiliary ladders. They also have two portable pumpers mounted on two-wheel gigs. Connections with water supplies are made through manholes in certain streets.

There are only about 50 fire calls a year and, in spite of the rather antiquated equipment, it and its manpower prove adequate. This is largely due to the fire resistant construction, wood being scarce and expensive. The last big fire in Peshawar occurred some 10 years ago.

M.D. Prescribes a Modern Fire Department

Every fire-minded fire fighter, not to speak of "high-voltage buff," has desired at some time to have his own fire chief's car, rigged and fitted as he would like it, with all the gadgets and panoply of the modern fire fighter.

They may well envy Dr. Theodore C. Hobbs, Chief of the Concord Township (Ohio) Fire Department, who has done an outstanding job of advancing the department, regardless of his unique imported fire chief's motor car.

Besides being chief of the department and one of its organizers, Dr. Hobbs is a photographer, a sports car enthusiast and all-round handyman. He is also the proud possessor of an English "MG" which doubles for him as his chief's car. The roadster is obviously foreign-looking. Its manufacturer, however, would never recognize it now. What left the factory two years ago as a conventional, streamlined sports car has sprouted a six-volt siren, short wave radio, three blinking red lights, and an instrument panel that looks like it had come from a B-37 bomber.

Spurred by a rash of burning houses and barns in the area, and a lack of adequate fire protection, a year and a half ago Dr. Hobbs and a group of associates got together and decided to learn to be firemen. "We were green at it," he says, "and it looked hopeless."

To encourage the men, he told them they should get together and start a fire department. This they did and the next thing he knew he was Chief.

The Township has two fire units, a pumper and an auxiliary pumper-tanker. The firehouse is on the grounds of the Girls Industrial School, atop which is a powerful steam whistle, which summons the volunteers when they're needed.

Dr. Hobbs, is proud of his little red car. He uses it in his work as well as fire fighting. It will do 80 M.P.H. he claims, and it is highly maneuverable. A locker behind the seat holds axe, fire hat and coat and one-gallon fire extinguisher. It has plexi-glass windows and safety belt for the driver, and a fibre glass top that looks like steel.

N.B.F.U. Recommends Improvements at Bridgeport

A new fire station in the North End section of the city, more personnel, additional fire hydrants and alarm boxes, and the inauguration of a complete training program are among the recommendations made for the Bridgeport, Conn., Fire Department in the report of the National Board of Fire Underwriters committee on fire prevention and engineering standards following a survey of conditions in that Connecticut city made during August and September,

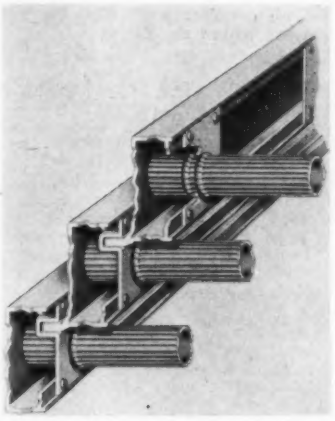
(*Continued on page* 520)

Left: Dr. Hobbs and his novel chief's car. Right: The dashboard of Chief Hobbs' car looks like the instrument panel on a bomber.

News of the Manufacturers

New Ladder by Duo-Safety

Duo-Safety Ladder Corporation, manufacturers of fire ladders, has announced a new addition to its line of aluminum fire ladders.



Cutaway view showing new tongue and groove construction.

The new ladders, designed as the 900-A Series, are a companion line to the 500-A, 700-A and 800-A ladders now on the market.

Series 900A two-section ladder.

A feature of this new series is a tongue and groove arrangement which securely locks the sections together without the use of brackets or hooks. This type of construction, the manufacturer claims, provides a close-fitting lock the entire length of the sections, and therefore prevents ladder jack-knifing, and increases strength and rigidity. This added feature is especially desirable in the longer 3 section ladders.

Of interest to firemen, the manufacturer states, is that the unusual tongue and groove method of locking sections also prevent "finger-pinching," a common hazard.

Series 900-A is available in both two and three section ladders and in a wide range of lengths. Complete information and specifications may be obtained by writing directly to Duo-Safety Ladder Corp., 809 Ninth St., Oshkosh, Wis.

Quaker Rubber and Pioneer Consolidate

H. K. Porter Company, Inc., Pittsburgh (Pa.), announced on June 2, acquisition of Pioneer Rubber Mills, Inc., of Pittsburg, California, largest manufacturer of industrial rubber products on the Pacific Coast. The announcement was made by Porter's president, T. M. Evans, who stated that the new acquisition would become part of the Quaker Rubber Corporation, one of H. K. Porter Company's nine divisions. The Pioneer plant becomes the fifteenth factory in the Porter group.

Founded in 1888, Pioneer Rubber Mills, with its factory in Pittsburg, California, and its general offices in San Francisco, manufactures fire hose and many other industrial rubber products similar to those manufactured by Quaker on the Atlantic Coast.

Sumner M. Suhr, Sales Manager, who has been with Pioneer since 1917, has been appointed manager of the new division under George A. Dauphinais, Vice President and General Manager of Quaker Rubber Corporation.

Quaker's main offices and plant are located in Philadelphia. The combination, Mr. Evans stated, will make possible better service to customers of both Pioneer and Quaker. Pioneer will retain its identity.

Boston Woven Hose

Engineers of the Boston Woven Hose & Rubber Co., Cambridge, Mass., asked representative fire chiefs to tell them what they wanted in fire hose. The answers, according to George A. Taylor, Advertising and Sales Promotion Manager of the company, were to the point.

What fire chiefs want primarily, according to Mr. Taylor, are lighter weight, greater compactness, better flexibility in cold weather, faster drying and easier coiling.

To meet these preferences, Boston Woven, which has produced rayon and dacron yarn hose, as well as the conventional cotton types, hit upon glass fibre yarn. This was "tamed" and specially treated, the resultant product exhibiting good flexibility, imperviousness to rot, burn and absorption of water.

Internationals Go to Windber and Dale, Pa.

Neighboring Pennsylvania boroughs of Windber and Dale have augmented their fire fighting facilities with the addition of new International pumpers, specifically designed for use in hilly terrains in the Johnstown area.

Largest of the two units is the Model R-306 acquired by Windber, (pop. 8,010.) It came from the International Harvester's Emeryville, Calif., Works. It has a gross vehicle weight rating of 30,000 lbs. and has a capacity of 1250 G.P.M. It employs a set-back front axle for maneuverability and efficient load distribution.

A Model R-1856 has been delivered to Dale, (pop. 3,310), from International's Fort Wayne Works. It mounts a 500-gal. 3-stage pump; 300 gal. portable pump; 500 gal. supply tank; and the usual complement of hose, fog nozzles, ladders and other accessories.

Truman Young Joins Kidde

Truman Young has been appointed manager for Market Development of Walter Kidde & Company, Inc., Belleville, N. J. For the past twenty-one years he has been associated with the Pyrene Mfg. Co., Newark, N. J., and served as its advertising manager.

Truman Young

According to P. W. Eberhardt, vice president in charge of sales of the Kidde Company, Mr. Young's background with Pyrene and his participation in fire extinguisher trade association and distributor affairs particularly qualify him for the newly-created position which concerns promoting and enlarging the company's marketing activities, particularly through jobbers.

Mr. Young attended Syracuse University's College of Business Administration. He has served on the President's Advisory Committee, International Association of Fire Chiefs, and

(*Continued on page* 515)

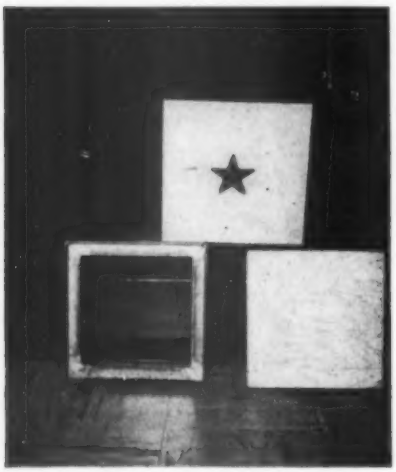
New fire truck delivered to Windber, Pa.

Short Cuts and Gadgets

BETTER BASEMENT FIRE CONTROL

This is a "short cut," actually several short cuts, to better basement fire control and extinguishment. We can best tell the story in the words of Fire Chief J. N. Farmer of the Petersburg, Va., Fire Department, whose organization is responsible for the idea.

Basement fires rank high among those most disliked by firemen. They are difficult to combat because of lack of access. More often, with one and rarely two points of entrance, usually in the wrong location for fire fighting operations, such below-grade confined fires stubbornly resist the most skilled attack.



The frame (lower left), 9-in. x 9-in., is held in place by 12 screws. Wooden panel (lower right), replaces floor when cut. Tile, with star, replaces floor covering that is removed. Stars are red and yellow, approximately 3 in. in diameter.

Basically the basement problem is no different than that of other fires, namely: ventilate, enter and extinguish. Because the fire is below-grade, however, and because natural openings are lacking, ventilation and entrance are often delayed until the initial fire has spread well beyond the point of origin.

This is what the city of Petersburg has done in the effort to increase the ease of handling these fires, and to decrease the damage resulting therefrom.

The fire prevention code of Petersburg, Virginia, requires all mercantile establishments having 2,000 square feet of basement area to protect such areas with sprinkler systems. But what about the numerous establishments having less than 200 square feet? The Petersburg Fire Department realized that fires could occur in these smaller areas in spite of constant inspections. Inasmuch as there was no provision in the city code, the department gave considerable thought as to how it could best prepare these establishments for efficient attack in case of fire.

The fire fighters knew they would doubtless want to use Bresnan or other distributors through the first floor, and ventilate through that same floor, using whatever natural openings to the outside that existed. To get the holes through the street floors necessitated cutting them, often in heavy smoke, heat and gases.

Then Petersburg firemen queried: why not cut those holes in strategic locations before the fire occurs? Upon investigating this possibility, they found the decoration and interior finishing of business establishments in their city in their favor. Most floors are tiled in one of the more popular forms of linoleum, asphalt or plastic tiles available. These tiles are most commonly 9 inches square, and a 9-inch square opening is just fine for a 2½-inch Bresnan distributor and is not too bad for ventilation when this is necessary. The problem was how to prepare a covered opening, bearing in mind the floor coverings and floor construction.

This is the way it is done: First a tile is removed and the floor beneath cut away entirely. Into this opening is fitted a specially made one-inch angle iron frame with the inward angle on the lower side. Into this is fitted a wooden square with a flush-fitting metal ring in the center. This whole device is so placed that its top is level with the floor upon which the surrounding tile is cemented. Then a new tile is cemented in place, and the floor is back to normal. The new tile is of a definitely contrasting color to the tiles in use on the floor and has a further contrasting five-point star inserted in its center.

Placement of these openings depends, of course, upon the size of the area beneath the number of basement and first floor partitions, and the contents of the basement. Each establishment must be surveyed and handled according to individual conditions. Usually the department strives to place openings centrally between the side walls and every 20 feet from front to rear.

Bresnan distributors and 2½-inch fog distributors are fixed to one end of a 10-foot section of 2½ inch hose. The other end of the 10-foot section is fitted with a 2½-inch gate-valve. Each short section is marked with a 2-inch white stripe three feet from the distributor. Two of these assemblies are carried on each engine. When operated, the nozzle is removed from the 2½-inch line and the gate-valve and section is put in its place.

The specially-marked tile is removed from the floor and the distributor is lowered through the opening until the white stripe rests at the edge of the opening. The valve is opened and the line is ready for service.

This method of operation offers several advantages to the routine method of attacking cellar fires. The prepared floor openings reduce the time of making an opening to 10% of that formerly required. The possibility of cutting into a floor sill is entirely eliminated. The fact that the distributor can be shut off, independent of whether or not the line is charged, prevents premature operation of the distributor, which usually results in excessive water damage in an area where there is no reason for water being thrown. The punishment taken by the men placing the distributor in operation is reduced in direct proportion to the reduction in time required to perform the operation. Lastly, but of primary importance, the speed of operation is paramount in preventing extension of the fire from its point of origin, or from its size at the time of initial attack, and the time required to achieve sufficient knockdown to permit firemen to enter the area is so sharply reduced that, almost simultaneously with arrival, men are within the fire area.

* * *

GETTING WATER FOR RURAL FIRE FIGHTING

Here's the kind of letter we like to get. It's from a chief of a small town fire department in Illinois. It has to do with encouraging farmers to provide water for possible use by firemen, and we print the chief's letter. He writes:

"In the October (1952) issue of FIRE ENGINEERING you published in Short Cuts and Gadgets an item about "An Ice Free Water Hole." This is all-to-the-good, but will some one tell me how to get a pumper that weighs 14,000 lbs. with 20 ft. of suction hose, to that water? Most of the ponds I have seen have the dam next to the barn, and are covered with brush of weeds, and the water is from 500 to 1,500 feet from the barn, and there are no roads—maybe just a foot path and you have to go through one or two gates to get to it.

"About a year ago we had a call to a farm home and it had been raining and the ground was soft. When I drove up they began to tell me how to get to the pond which was 1,500 feet from the house. I said I wasn't looking for the pond—after seeing what happened to one of the firemen who pulled off the road to be out of our way, and got stuck. We had to pull him out—what would we have to do with our pumper? As it was, we got the fire out with the water we had in the tank.

"The result of this, and other situations is that I wrote a letter to try to get the help of the property owners. I put it in the local paper that covers this territory in the hopes they would do something about it . . . if they would, their help would make it much easier for us.

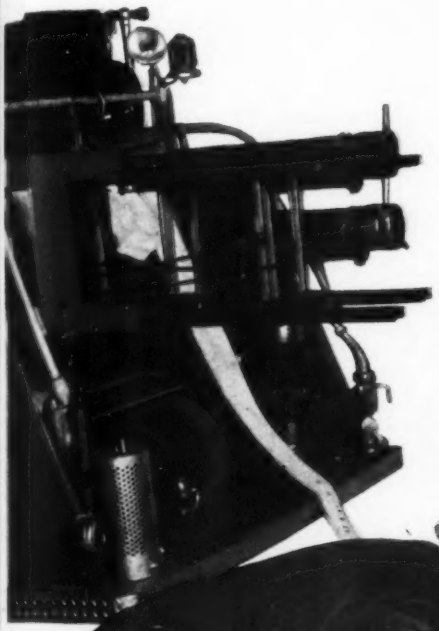
"My criticism about the farmer is that he will spend $15,000 to $50,000 on farm buildings, and none for fire protection. The farmer should build a concrete tank alongside the road, not closer than 100 feet to buildings or more than 200 feet from them. The tank should be 10 ft. long, 4 or 5 ft. deep, and 4 ft. wide. It should have a covered manhole so we firemen would just have to take off the lid. The farmer should pipe this tank from the pond underground and put a pump at the pond, housed in (a good electric pump, or one of the portable pumps, would do), and keep the tank full at all times. The farmer could also have a hose which he could use in time of fire until the fire department got there.

"Some will say 'this will cost money.' That's true, but it would be worth it if it would save his home."

* * *

Our inquiring reporter noticed that Onawa, Iowa, has fire hydrants located in downtown alleys. Seems like a good idea if the alleys are wide enough for maneuvering fire apparatus.

Connect up with the hose that gives more ...costs less in the end!



--EUREKA Multiple-Woven

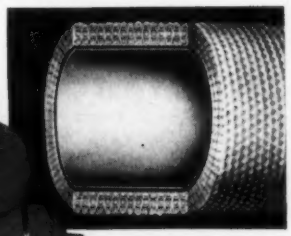
EVER NOTICE how folks who are able to take advantage of "good buys" often enjoy more luxuries, yet actually spend less money in the long run than those who live "from hand to mouth"? The same is true of Fire Departments!

Some departments, forced to get the most footage for every available dollar, buy the lowest-priced approved hose. It gives them four, perhaps five, years of service.

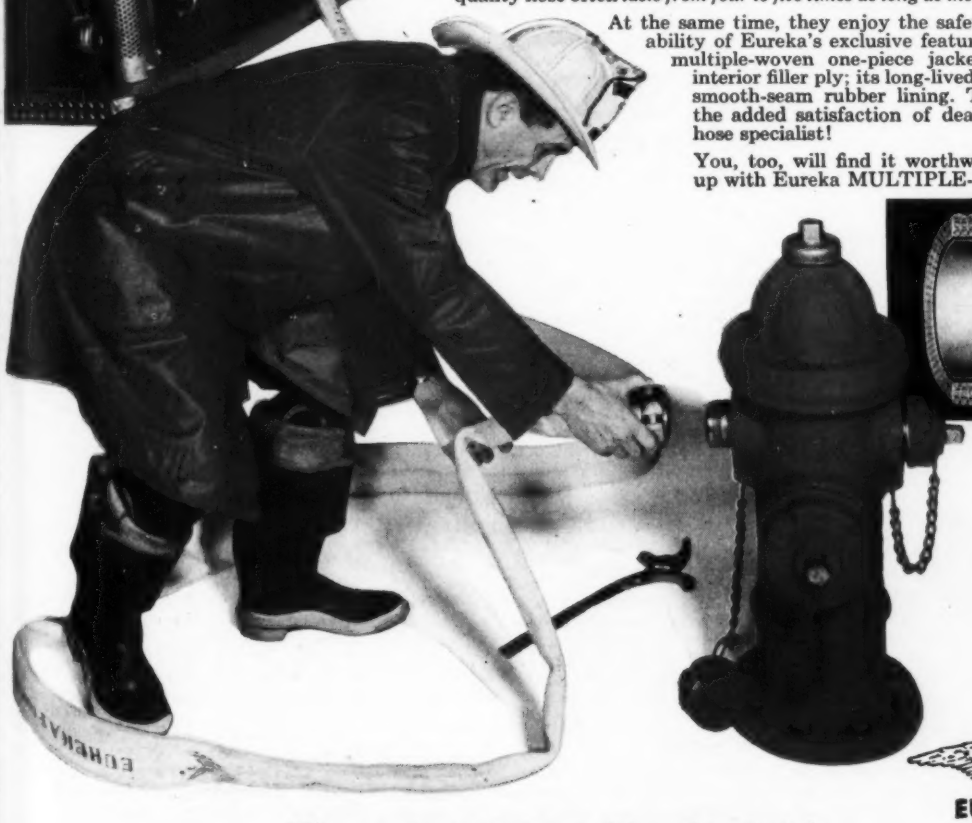
Others, able to make a larger investment for the same footage of premium-quality Eureka MULTIPLE-WOVEN hose, have found they can *cut their long-range hose costs in half!* They *save* because this top-quality hose often *lasts from four to five times as long as the "cheaper" hose!*

At the same time, they enjoy the safety and dependability of Eureka's exclusive features: its circular-multiple-woven one-piece jacket; its smooth-interior filler ply; its long-lived, heat-resisting, smooth-seam rubber lining. They also have the added satisfaction of dealing with a fire hose specialist!

You, too, will find it worthwhile to connect up with Eureka MULTIPLE-WOVEN!



All plies are woven *and interwoven* simultaneously. There's no space between plies for water and dirt.



"For greater protection to life and property"

EUREKA FIRE HOSE

Since 1875, Specialists in Manufacturing Circular-Woven Cotton Rubber-Lined Fire Hose

195 Hudson Street • New York, 13, New York • *Division of United States Rubber Company*

The WATCH DESK

Overhauling the firemanic news of the day

by ROI B. WOOLLEY

Discreet (?) D. C. Firemen Invade Distaff Domain

This is an oldie that Irv' Johnson was holding out on us. It's about the "discreet" District of Columbia firemen, who wasted no time on the "Ladies-Only" floor when they hadda fight a blaze in a health institute.

Struth! — Firemen, we're told, just didn't have time to consult their etiquette books when they responded to an alarm for a fire in an elevator shaft of 1221 Connecticut ave., N.W.

When they reached the third floor, immediately below the floor occupied by the Emile Health Institute, they were confronted by a sign which read: *"Next Floor Ladies Only! Gents Take Eelevator to the Fifth Floor"!*

"Well this elevator ain't working," said one of the smoke-eaters, "close yer eyes men, and let's go!"

And they went — upstairs on the double—so rapidly that it is said they did not see the four scantily-clad women busy with reducing and relaxing exercises at Emile's. Right up to the top floor they hurried, and put out the fire.

Oh well, it makes a good story. No doubt there was a lot of smoke.

THANKS IRVING JOHNSON

* * *

A Nickle Away from the Fire!

Not so long ago the vamps of the western New York village of Avon reached an important decision. From then on, there's a nickle beside the telephone in the firehouse.

It all came about when the fire alarm sounded, and six of the volunteers rushed to the firehouse—only to find that not one of 'em had the coin to telephone the chief to find out where the fire was (according to the wayward press, that's what the vamps of Avon have to do when there's a fire—get on the phone and call up the chief to learn the location of the fire). That's because Fire Chief George W. Studley or one of the family, sounds the alarm from his house after taking the fire call over the phone.

As it turned out, the Chief arrived at the fire station six minutes after the bewildered brothers, and led them to a burning truck. After that episode, the Chief said the nickle will be next to the phone thereafter—where everyone can see it.

THANKS GEORGE WARREN

* * *

Firemen Play (Water) on Hot Piano

Hamilton, N.Y., firemen, in all their 79-year history never were called upon to fulfill a request such as they received one noon, when they were sought to give a "concert" on a flaming piano on Route 12-B.

It happened on a mid-afternoon of an April day, when a passing motorist halted a delivery truck from a Syracuse music company to warn the driver that a grand piano he was carrying was really 'hot'—in fact, was in flames.

Volunteers helped hold down the flames until a three-man crew from the Fountain Fire Department, under direction of assistant chief Clarence "Tink" Taylor, arrived on the scene, and "joined in the chorus."

Only the family in Earlville, which was to receive the piano, complained of any discords!

THANKS "ANONYMOUS"

* * *

Firemen Believe in Signs?

In February, the volunteer firemen of Southern Lancaster County, Pa., were allowed on Jacob Schmuckle's property for the first time since the day before Christmas.

Schmuckle grew a peeve for the vamps when he claimed that they had caused $1,000 damage to his property in searching for a lost boy the day before Christmas. He threatened to sue the firefighters, and plastered "NO TRESPASSING" signs on his property.

In February, last, the home of Mr. and Mrs. Harry Harmon, adjoining Schmuckle's property, caught fire, and the volunteers were called out but were unable to save the house which was destroyed, leaving the Harmon's and their seven children homeless.

Embers from that fire landed on Schmuckle's valuable timberland. But firemen, remembering their ruckus with the irate landowner made no move to go to work on the new blaze.

Several hours after the fire started on the Schmuckle property, he called the fire fighters, and asked their aid. They responded and extinguished the fire—after it had done an estimated $1,000 damage.

* * *

Oh, for the Life of a Fireman!

This one comes from Alaska. It's about the Kodiak Fire Department which, the wayward press hath it, was sort of out of practice.

The lads hadn't heard the fire alarm for so long, everything went haywire when Emanual Davis, outside the city limits, reported a fire.

Here's what happened—

The fire truck wouldn't start—dead battery. The booster pump failed when they finally got to the scene of the fire. Then the truck was run into a nearby lake to draft—but the pump wouldn't work either.

It took the old fashioned and "still reliable bucket brigade" (that's the way the paper described it) to put the "blaze" out.

The Kodiak crew gathered their useless equipment together and found—

Their piece of apparatus was stuck in the mud of the lake bottom.

Draw your own conclusions.

THANKS, J. KEARNS

* * *

Off the Tape

Out Beloit, Kansas-way,, an owl spread a fire that burned an estimated 700 acres of pasture by flying half a mile with its wings aflame and dropping on a farm, starting a new fire. The second fire spread over five other farms. The bird had been nesting in a burning tree. . . . Fire fighters of Worcester, Mass., for five hours poured water on a fire in a freight carload of sawdust. Loss negligible. Wot—no wet water? . . . L. C. Johnson of Marshall, Tex., admitted April 10th that he set fire to his automobile and house in an effort to gain sympathy and votes for constable. He was slapped with arson charge. . . . In Mt. Vernon, Ind., fires have come to the fire department ere this, but this is the first one that literally floated in. Floating trash, saturated with oil, caught fire on Mill Creek and drifted through Mt. Vernon. Firemen put out the blaze without damage, but not without difficulty. . . . Four Bradford, Pa., families were made homeless and four persons injured the night of April 14th, last, in a fire that destroyed three homes and damaged three other buildings. Among the families was that of Mr. and Mrs. Harold Francisco. A month ago their former home was destroyed in a blaze which killed their 2-year-old son. . . . An 8-year-old boy has confessed he set fire to a Catholic Church in W. 53rd street, Manhattan with alter candles "so I could see God." . . . A 75-year-old Brooklyn man was burned to death April 30th in a Patchogue, L. I. brush fire, apparently touched off by a small blaze he had set to burn leaves. He was visiting relatives in Patchogue at the time. . . . Fireman Nathan Champion, 38, N. Y. F. D., suffered cuts and bruises and possibly a broken nose, when he was thrown from a fire truck. . . . Governor Thomas E. Dewey has approved the Lazzillotti Bill, amending the Multiple Residence Law, to require that there shall be at least two independent means of egress from each story of a multiple residence accessible to each room, apartment or suite except certain two-story tenement dwellings. . . . Governor Dewey also signed a state law prohibiting abandonment of refrigerators or iceboxes that might become death traps for children. . . . Glen Echo Md. firemen used a lifeboat to rescue a Virginia couple who were swept in a canoe over a Potomac River dam. They clung to river edge brush for nearly 45 minutes until rescued. . . . In New York City, two radio car patrolmen saw smoke and sounded a fire alarm at 4:23 A.M. Firemen rolled up to the scene to find only some burning papers, apparently ignited by a cigarette, burning under a street grating. The radio car reported to police headquarters: "Small fire extinguished by disgusted fire department." . . . Waynesboro, Va. firemen sat down to enjoy a long-awaited covered dish dinner served by ladies of the Auxiliary. Their dinner was rudely interrupted three times by fire alarms before they finished—three hours later. This would seem to set some sort of a record. . . . In Corning, N. Y., firemen are asking "for whom did the bell toll?" The alarm at City Hall rang 725. No such box number. Then 41, followed by eight single strokes. It meant nothing—only confusion worse confounded. Then 78 came in, was repeated, and the trucks rolled. False alarm! . . . Mrs Jean Clement, who operates a roadside snack bar in Westmere, suburb of Albany, N. Y. won a prize at a card party sponsored by the Westmere Fire Department auxiliary—two chicken dinners at a restaurant across the street from her own. . . . Ten small children were dropped by their parents from second floor windows of their burning apartment home in Minneapolis into the arms of rescuers, April 20th. Then the parents, unwilling to risk the smoke-choked halls, themselves dropped from window sills or slid down bedsheet "life lines."

Symbol of Quality-Service-Protection . . . for the modern fire fighter

The famous Midwestern Manufacturing Company trademark is your guide to the finest protective clothing that money can buy—garments that are specifically designed to help safeguard your men's life on every run—enable them to use their equipment to the fullest advantage. Superior quality, design, fabric texture and many exclusive features have made Midwestern Protective Clothing highly favored wherever men fight fires.

- **Exclusive Safety Features**
- **Tailored for Comfort**
- **Softer, More Pliable Materials**
- **Made of Natural Rubber**

We manufacture both rubber and fabric fire coats. In our vast selection of materials you will find the type of fabric exactly suited to your climate and needs. You can depend on the softness and flexibility of the high grade materials used to meet your most exacting requirements for lasting comfort and service under the most rugged conditions.

For complete information on our full line of firemen's protective clothing, see your Midwestern dealer. A letter to the factory will also bring you literature and material samples for your inspection.

MIDWESTERN MFG. CO., Mackinaw, Illinois

Manufacturers of the Famous **MACKINAW Coats**

FALSE ALARMS

The Power of Sleep

It was the morning after a riotous party. Maggie, who was always a judicious celebrator, managed to rise from her bed in a fairly good condition; but Jerry, her husband, was in an awful state. He sat holding his head and groaning.

"Jerry," his cautious mate admonished, "I warned you last night. If you hadn't drunk so much, you wouldn't feel so horrible this morning."

"Drink had nothing to do with it," the afflicted man moaned. "I went to bed feeling wonderful and woke up feeling awful—it was the sleep that did it."

A man on a deck chair trying to sleep. Along comes a little kid, starts asking questions and pestering him to death.

"Run along, kid," said the man. "I'm trying to sleep."

"My daddy sleeps in bed," answered the kid.

"YEAH? well your daddy didn't sleep long enough."

Sure Thing

The boys from the back room were gathered at the services for a fellow gambler who had passed on.

"Spike," droned the preacher, "is not dead. He is sleeping."

Came the inevitable voice from the rear: "I've got a grand that says he's dead."

Three drunks came into a bar late one night, but one of them fell flat on his face inside the door. The other two stepped up to the bar and ordered Scotch and soda. "O.K." said the bartender, "and what'll your friend down there have?"

"Oh, nothing for him!" they chorused. "He's got to drive."

"I'm getting tired of pushing. This better not be a false alarm!"

"Dreadful, isn't it?—And they still haven't paid my nine dollar refund!"

While a farm girl was milking a cow, a bull tore across the meadow toward her. The girl did not stir, but continued milking.

Observers, who had run to safety, saw to their amazement that the bull stopped dead within a few yards of the girl, turned around and walked sadly away.

"Weren't you afraid?" they all asked.

"Certainly not," said the girl. "I happened to know this cow is his mother-in-law."

Housebroken

We asked the youngster who lives on our street how he was getting along with the new puppy he acquired a couple of weeks ago, and he replied, "He is getting along swell, but he makes puddles on the floor."

"What does your mother do about it?" We asked.

His reply: "She goes to the bathroom."

"For years," she said, "I didn't know where my husband spent his evenings. One night I came home early, and there he was."

Quite a Party

"Did you get home all right after the party last night?"

"Fine, thanks, except that as I turned into my street, some idiot stepped on my fingers."

An abbreviated novel:

Chapter 1: Walking in the moonlight with an arm full.

Chapter 2: Walking the floor with both arms full.

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Questions and Answers

Relative Friction Losses in Different Diameter Hose

To the Editor:

At one time I was told that in 3-inch hose there was 39 per cent less friction loss than in 2½-inch hose; that there was 33 per cent less friction loss with 3-inch hose with 2½-inch couplings than 2½-inch hose; and that there was 28 per cent less friction loss in a siamesed line than one 2½-inch line.

Lately, one of my friends told me this was not so. What is your opinion?

E. M.

Answer: The friction loss in 2½-inch hose is 2.6 times the friction loss in 3-inch hose for the same flow.

The friction loss in 2½-inch hose is 2.5 times the friction loss in 3-inch hose with 2½-inch couplings (for the same flow).

The friction loss in 2½-inch hose is 3.6 times the friction loss in two parallel lines of 2½-inch hose for the same total flow.

On the basis of the above comparisons we get the following percentages: Friction loss in 3-inch hose is 38.5% or 39% of the friction loss in 2½-inch hose for the same flow.

Friction loss in 3-inch hose with 2½-inch couplings is 40 per cent of the friction loss in 2½-inch hose for the same flow.

The friction loss in two parallel lines of 2½-inch hose is 27.8 per cent or 28 per cent of the friction loss in 2½-inch hose for the same flow.

Emptying a Water Tank

To the Editor:

We have a water tank 12 feet in diameter and 10 feet high with a standpipe from tank on roof with nozzle with a 1½-inch tip attached 100 feet below the bottom of the tank. We want to know how many gallons of water there are in the tank, assuming a full tank; also what is the pressure at the nozzle and how many gallons per minute being discharged, and how long it will take to empty the tank.

A line of 3-inch hose 400 feet long and equipped with a 1¼-inch tip, is laid to a fire. A 50-foot length burst and must be replaced by a 50-foot length of 2½-inch hose. Nozzle pressure is 45 pounds and the discharge is 300 gallons approximately.

What is the increase in nozzle pressure due to burst length of hose; also is there a change in engine pressure?

Would it make any difference if it were the first length of hose that burst or the second or third, etc?

A. V. M.

Answer: The first step is to find the volume of the tank. To do this, we find the horizontal cross-sectional area first and then multiply by the depth.

The area of any circle is equal to $\frac{\pi d^2}{4}$,

where π is equal to 3.1416.

"d" is 12 feet. Then the area=3.1416 x12x12÷4, or 113.0976 square feet, or roughly 113.1 square feet.

The depth of the tank is 10 feet. Therefore the volume=10x113.1, or 1,131 cubic feet.

There are 7.481 gallons in a cubic foot, so in the tank there would be 7.481x1,131, or 8,461 gallons of water.

The average head of water in the tank above the nozzle is equal to 105 feet. This figure is secured by taking half of the depth of water in the tank plus the 100-foot standpipe. Then the average static pressure at the nozzle will be .431x105=45.57 pounds.

Neglecting the friction loss in the standpipe, which will probably be negligible, the discharge will be as follows:

Discharge=$29.7 \times 1\frac{1}{2} \times 1\frac{1}{2} \times \sqrt{45.57}$
=452 gallons per minute approximately.

The time taken to empty the tank will then be 8461÷452, or 18.7 minutes approximately.

With reference to the second question you submit for a nozzle pressure of 45 pounds on the 400-foot line of 3-inch hose, we would require an engine pressure of 83 pounds.

If one section of 3-inch hose in the line were replaced by 2½-inch, the nozzle pressure would be reduced, pro-

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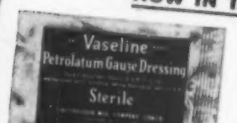

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vided the engine pressure remains the same.

We solve this problem as follows: First change the 350-foot line of 3-inch hose to 2½-inch by dividing by the factor 2.6, giving us 134.6 feet of 2½-inch hose.

Then the line would be made up of a single stretch of 2½-inch hose 134.6 +50, or 184.6 feet in length.

Nozzle pressure=Engine Pressure÷ (1.1+KL).

Engine pressure is 83 pounds. K for 2½-inch hose and 1¼-inch nozzle is .248. L, the number of 50-foot sections of hose in the line, would be 184.6÷50, or 3.69 approximately.

Then N. P.=83÷2
=41.5 pounds.

The loss in nozzle pressure due to replacing one 50-foot length of 3-inch hose with a 50-foot length of 2½-inch hose, is 45—41.5, or 3.5 pounds.

Placement of Pumpers in Relay Lines

To the Editor:

As I recall in your writings regarding relays, you have said that the largest pumper in rating should be placed at the source of supply. In our city we are instructed to place the largest pumper nearest the fire. In order to accomplish the relaying of water sufficient for normal pressure requirements, the more powerful pumper is usually placed nearer the fire, and the other nearer the source of supply. It is only necessary that the first pumper get a volume of water to the second pumper at approximately 20 pounds pressure, while the second pumper must build up the pressure required at the nozzle.

I have had many arguments relative to the above, and I contend that the largest pumper should be placed nearest source of supply. I would appreciate your giving me the correct answer on this and your reasons for same.

H. R.

Answer: Theoretically, the smaller pumper should be placed at the source of supply and the larger pump near the fire. The load on the first pump will be constant and it can be so placed as to utilize all of its power to deliver water through the hose and furnish an inlet pressure of around 20 pounds to the second pumper. The second pumper, on the other hand, may be required to discharge through longer lines of hose, due to extension of lines at the fire, and for this reason, it must have a surplus of power available for the purpose.

Practically, however, most fire departments place the larger pump at the source of supply, and the smaller one near the fire.

Possibly the feeling that the larger pump was more dependable may have started this practice, but today, pumps of all sizes are dependable and can be expected to operate at capacity for long periods of time without interruption.

Those who favor the use of the larger pumper at the source of supply believe that this is desirable in the event that the smaller goes out of commission. Then the larger pump can pump through the longer line, employing a smaller nozzle, and still get water on the fire.

Ohio State Fire School

Gary Brazier, Director of the Ohio State Fire School, has announced that the Ohio State Fire School will be held this year at Ohio State University, September 13 through 17.

The School will be sponsored by the Political Science Department of Ohio State University, Division of State Fire Marshal, Ohio Inspection Bureau and the Trade and Industrial Vocational Education Department of Ohio. Noted authorities on fire prevention and protection will appear on the program.

The Courses being offered this year will be Instructors, Inspectors, Evolutions and Emergency Squad Training. The Columbus Fire Department, Franklin County Fire Fighter's Association and Franklin County Emergency Squad Association will furnish the manpower and equipment.

An added feature is being planned for this year's School. Preparations are being made for a "house burning." This is being done to further the firemen's education on the "indirect application of water."

Further information can be obtained by contacting Mr. Wayne C. Jenkins, Assistant Fire School Director, Division of State Fire Marshal, Columbus 15, Ohio.

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Obituaries

Harry M. Archer, Fire Surgeon, Dead

Dr. Harry M. Archer, Second Deputy Fire Commissioner of the New York Fire Department since 1940 and an ardent fire fighter since childhood, died May 18 in Doctor's Hospital. He had been at the hospital with a respiratory ailment for a month. He was eighty-six years old on April 23.

Harry Mortimer Archer was the most famous "fire buff" in New York City, having "rolled" on almost every important blaze in the city in the last seventy-five years.

Dr. Harry Archer at his desk in a photograph taken some time ago.

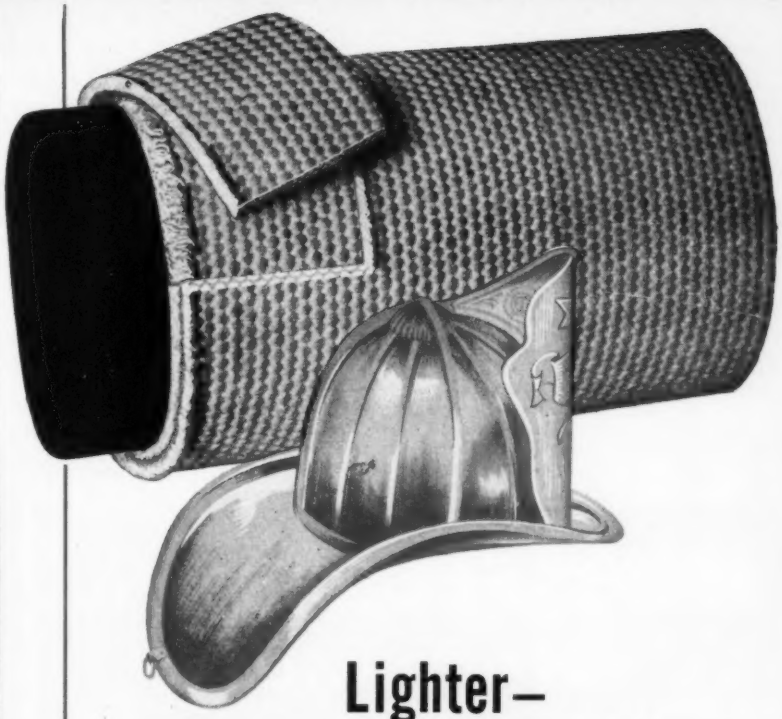
Long before he became an official of the department, he was a familiar sight at every fire, rushing to the scene in all sorts of weather to attend to his "boys."

Fire officials said of the doctor that he missed only one "two-bagger" in Manhattan in his lifetime and that was only because it occurred while he was being married to Miss Emilie June Walker on Feb. 17, 1914. Even then two of the ushers were fire chiefs and a third was a deputy chief.

Dr. Archer's interest in fires and firemen began when he was still a schoolboy. He rigged up a miniature fire station in his father's stable on E. 51st St., equipped with bunks, hook and ladder and fire gong, and drilled a company of his schoolmates in the techniques of firefighting.

He attended so many fires and firemen that he was given the rank of honorary fire commissioner and won several medals for heroism as early as 1912. Dr. Archer estimated he had chased 7,000 fires by 1923—then he stopped counting. He was named second deputy commissioner in 1940 by the late Mayor F. H. La Guardia.

Dr. Archer was born in New York on April 23, 1868, the son of Oliver H. P. Archer, president of the Erie Railroad. He was graduated from Columbia University in 1889 and went to the Bellevue Hospital Medical College. He became an assistant to the chief surgeon and for twelve years taught surgery, for six years at the Bellevue College and the other six at Cornell University Medical College. He joined the Aetna Life In-



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surance Co. in 1894 as a surgeon adjustor and retired in 1934 after forty years as its chief surgeon.

But his chief interest was always the Fire Department. Besides treating almost every one of the thousands of men in the department in this century, he developed antidotes for smoke poisoning, aided in the acquisition by the department of the most modern first-aid apparatus, and contributed several department ambulances out of his own pocket.

He had fire bells in his home, which sounded each alarm in the city and, when the fire apparatus was still horse-drawn, rushed to the scene in a rubber-tired runabout pulled by a fast trotter.

Later he traveled to fires by automobile with a slowly growing kit of first aid equipment. He won his first medal for bravery at the Equitable Building fire of Jan. 9, 1912, and the James Gordon Bennett medal and the Fire Department's Medal for Valor following a fire on March 30, 1923, at Canal and Eldridge Sts. During this fire he crawled beneath the debris of the building to administer to two firemen trapped by timbers.

He was a founder and former president of the International Association of Police and Fire Surgeons and had made trips to Europe to study continental fire fighting methods.

Meneely, World-Famous Bell Maker, Dead

Chester Meneely, 77, retired president of the Meneely Bell Co., died May 5th at his home in Troy, N. Y.

So passed a celebrity who devoted his entire life to working with bells. He was said to be one of the few people whose ear was sufficiently sensitive to hear the actual "strike note," the original sound made by the clapper against the bell. What most persons hear is the "hum note," the warm, lasting sounds produced by the vibrations of the bell metal. It is the generally unheard "strike note" which reveals most clearly the bell's characteristic tone quality.

This difference won acclaim for Mr. Meneely as the world's foremost authority on bells. There are less than a dozen bell foundries in the world, and four of them are in this country. Two of these are owned by rival branches of the Meneely family.

Mr. Meneely was born in Troy and spent his whole life there. At the age of 12 he worked during school vacations with his father's men, ringing bells to test their tone. Bells turned out by his foundry are in the Metropolitan Life Insurance Building, New York, Grace Church that city, in Christ Church, Philadelphia; others ring out calls to worship in Australia, Egypt, Syria, Japan, Turkey and virtually every other country on earth.

Meneely bells were early adopted by the fire service, and were consistently advertised in Fire & Water Engineering (predecessor of Fire Engineering) half a century ago.

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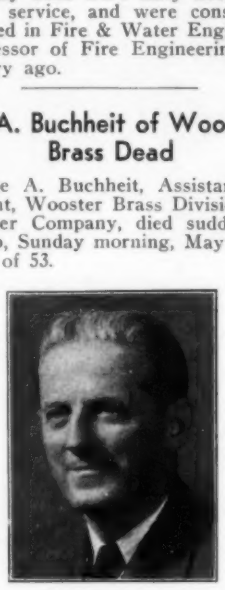
G. A. Buchheit of Wooster Brass Dead

George A. Buchheit, Assistant Vice President, Wooster Brass Division, The Fyr-Fyter Company, died suddenly in his sleep, Sunday morning, May 2nd, at the age of 53.



George A. Buchheit

Mr. Buchheit was a life long resident of Wooster, Ohio, and had been associated with the Wooster Brass organization for the past twelve years. His work had taken him into most of the 48 states and Canada. Wherever he went, he made many friends and acquaintances who will remember him as a friendly, jovial person, always willing to help in every way to improve the fire fighting profession.

Chief H. W. Hirst Dead

Herald William Hirst, 46, chief of the Fire Department at the Naval Ordnance Laboratory, White Oak, Md., died May 18 of a heart attack in the hospital at Prince Frederick, Md.

Chief Hirst was stricken while visiting at Drum Point, Md.

In addition to being deputy chief of the Takoma Park Volunteer Fire Department, Inc., he was vice president of the organization. He served as fire chief

from 1938-40 and played an active part in developing the Takoma Park Fire Department.

In 1937 he conducted the first firemen's training class in conjunction with the Fire Extension Service of the University of Maryland. He was associated with Prof. R. E. Criswell, who conducted the fire fighting courses.

Chief David Stuart Passes

Services were held April 6th, for Fire Chief David G. Stuart, 69, of Ventnor, N. J., who was a fire fighter for 45 years. He was to be retired two weeks after his death, and a special retirement ceremony had been arranged, commemorating his 70th birthday.

Chief Stuart was director of the New Jersey Safety Council and active in fire prevention and protection activities.

Ventilation

(*Continued from page* 489)

as well as where, and when.

It should be obvious upon reflection that whether the fog stream is being applied for extinguishment, or as a ventilating medium, it should be "worked." That is, it should be so directed as to cover the *greatest possible area,* and to prevent heated gases or flame bursts from encircling or enveloping the operators.

Generally speaking, the pattern is directed with a circular motion of the nozzle. When using it in confined spaces, particularly such as basement and sub-basement fires, where there are limited openings, rapid movement of the pattern may be essential to cool down the heated atmospheres, and to prevent encirclement. Under these conditions, two, or even more, fog streams may be required to provide protective covering, operating the crews one behind the other.

Another chief who prefers a fairly wide fog pattern and insists upon a sufficient number of nozzles in the operation to insure that the combined water fog discharge will cover the entire width of the area, is Stuart Potter of the Greenwich, Conn., Fire Department.

Where interior venting by fog is the order (he maintains), such a continuous wall of fog will force smoke and heat ahead of it. And he points out what the firefighters learned in the basement of the skyscraper, that if the fog pattern does not extend the entire width of the area, the smoke and heat may bypass to the rear of the men as the nozzles are advanced, possibly placing the crews in a dangerous position. If this method is to be successful, sufficient openings must be provided ahead of the operation as outlets for the contaminated atmospheres. Also he believes there should be openings at the *rear* to permit easy entrance of fresh air for replacing the foul atmospheres driven out.

Lastly, Chief Potter makes another pertinent observation: It has applied somewhat to the operation of straight streams for years, but few fire fighters have considered its importance in the use of water fog, particularly when used as a medium of ventilation. That is never to attempt to ventilate an area by entering *both ends* of the area simultaneously and trying to advance lines against each other.

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Among the Buffs

By Paul C. Ditzel

LOS ANGELES area buffs turned out just before this column's deadline for a general alarm fire in a Santa Fe Springs oil refinery. It was the first general alarmer for the Los Angeles County Fire Department since 1950 and Chief Keith E. Klinger's first since he became chief engineer. The last such blaze was in the Pacific Clay Products plant, only a short distance away from the most recent fire.

Thomas Showers, known nationally for his exquisite models of fire equipment—old and new—was the only fireman casualty. Captain Showers suffered first degree burns on both feet when he stepped in a puddle of hot oil and water. Showers told your columnist at the fire scene that this fire was his first really big one since he was promoted.

Also on hand at the fire was Don Shelburne, also a Los Angeles County Fireman attached to Engine 23. Don was off duty and brought along his camera which was good for a satchelful of shots. Don mentioned that his magazine, The National Fire Fan Register, folded recently. This of course comes as sad news to avid buffs who already are writing this column to lament the Register's passing.

Don also said he was talking to Glen Alton, president of Los Angeles' Box 15 Club when the oil refinery suffered a series of three blasts which resulted in an 18-engine fire.

One of those who regrets the Register's passing is Allen W. McDonnell, 3400 Connecticut St., St. Louis, Mo., who writes, "The fans around the country are certainly going to miss the Register and its informative articles."

McDonnell would like to correspond with buffs interested in the operations and signals employed by various fire alarm offices around the country.

Buff McDonnell, incidentally, is the son of that intrepid fan of the St. Louis Fire Department, W. A. McDonnell.

"It was through his interest in the fire department and fires that I became a fire fan while a youngster," writes Junior McDonnell. "The third generation of fire fans in the McDonnell clan has started. My 8-year-old son is well acquainted at engine houses, visits fire alarm headquarters with me and has a standing promise from me that he can accompany me to all 'seconds' occurring on Saturday evenings and Sundays. He has made a couple."

Brer McDonnell says further that the St. Louis Department has taken the initial steps towards two-way radio communication. All battalion chief buggies are now equipped with two-ways through the police radio. And by the time this hits print, the department is expected to have their own station, KAG 632. All equipment will carry two ways.

Also by the time this column hits print, this columnist will have been guest speaker at a meeting of the Harbor District Firemen's Association. Captain William C. McDade of the Santa Monica Department invited your correspondent to speak to association members and also to look over their new fire station No. 2 at Washington Boulevard and Hollister Ave. Captain Mc-

Dade says the new station is "the finest anywhere," which is no idle boast in this area of palatial palaces passing for fire stations. Chicago should live so long. I also have a speaking engagement before the annual meeting of the Pacific Inter-Mountain Fire Chiefs Association in Long Beach, late in August. Seems these newspapermen never run out of hot air.

Digging deep—in some cases back as far as a year—I come up with a handful of unanswered mail.

Via Akron, O., Donavan Sams, 1291 Tampa Ave., said he'd like to hear from buffs who are interested in old time fire equipment and exchanging information on them. This request was made so long ago, that Brother Sams letter has moss on it, perhaps from over-exposure to this Pacific Ocean air.

Bob Allen, 1601 Sacramento Ave., Apt. 12, San Francisco—(now there's a town for you)—says he was a San Francisco fireman for four years and would be happy to exchange information and pictures with buffs. A word of caution however. The way I hear it—DON'T call it The Frisco Fire Department.

Fire Fan R. H. Davidson, 1018-16 Ave., South, (that's what the return address said, honestly)—in Nashville, Tenn., sends along a clipping about Fireboat Atlantic III of the Wilmington, N. C., department. Seems some politicians in an economy drive recommended that the boat be junked. So along comes the worst fire in Wilmington's history. You guessed it, the venerable boat helped save the day for the city.

Buff Davidson lays claims to being Nashville's oldest "dyed-in-the-wool" buff and says he started at the same time progressive cities began slipping Christie and other tractors under their trucks and steamers.

This column finally heard from the Hoop and Hammer Association of Hillside, N. J., the outfit which stirred up all the ruckus on its name in a recent issue. Edwin Von Dinden of the club ends the controversy once and for all by explaining that the group took its name from a miniature tree with a hoop and hammer on it. This gadget reposes on the desk of Chief Daviet. The club's spokesman adds that Hillside has no fire alarm boxes, so naturally couldn't take its name from any box number. This figures.

That's about it from this quiet seaside resort. The place was livened up the other night when the Los Angeles City Fire Department dispatched Engine 80, Engine 5 and Truck 63 to an auto accident along the ocean front. Keep sending those anecdotes this way. The address remains the same: 419 Napoleon St., Playa del Rey. And I'm still labor editor down at the Los Angeles Daily News. Any more questions?

Medical Group Urges Safety Belts for Drivers

The house of delegates of the Medical Society of the State of New York has approved in principle the suggestion that automobile manufacturers equip their cars with safety belts.

The idea of safety belts for drivers of fire apparatus is not new. It was advanced in "Short Cuts & Gadgets" several years ago. Some fire departments have installed safety belts, or shoulder straps, for tillermen of aerial ladders.

a nice partner!

"Choice for Quality the World Over"

INDIAN

FIRE PUMPS

make a winning team

When the going gets tough you want someone on your side that can come through in an emergency. **INDIAN FIRE PUMPS** have the drive that smashes through smaller fires in a hurry.

The fact that **INDIANS** carry on the back leaving arms free means that the carrier gets around faster, gets into action sooner.

And clear water only does the trick . . . no chemicals to buy or bother with. Team up with **INDIAN FIRE PUMPS** for a winning combination.

(Below) **Truck built by American Fire Apparatus Co., Battle Creek, Mich., and delivered to Moscow Twp. Fire Dept. Note mounted INDIAN FIRE PUMPS.**

All Seams Are Electric Welded—No Leakage

"Used INDIAN FIRE PUMPS Nine Times in Ten Days"

"I have used **INDIAN FIRE PUMPS** for over nine years and at present have twelve of them on my fire truck. We have used these **INDIANS** nine times in the last ten days.

The **INDIAN** is the only thing to fight grass and brush fires. I cannot praise them highly enough and wish we had 12 more of them right now. There is nothing else made which will match them.

Stanley W. Griswald, *Chief*
Westbrook, Conn. Fire Dept.

D. B. SMITH & CO. 406 MAIN ST. UTICA 2, N. Y.

PACIFIC COAST BRANCHES:

Hercules Equipment & Rubber Company, Inc. 435 Brannan Street San Francisco 7, Cal

Fred E. Barnett Company 2005 S. E. 8th Ave. Portland, Oregon

Mill & Mine Supply, Inc. 2700 Fourth Avenue South Seattle, Washington

Roy G. Davis Company 1355 So. Flower St. Los Angeles 15, Calif.

Fred E. Barnett Co. 600 Spring Street Klamath Falls, Oregon

L. N. Curtis & Sons 426 W. Third St. South Salt Lake City, Utah

CANADIAN AGENTS:

Fleck Brothers, Limited 110 Alexander Street Vancouver, B. C., Canada

C. E. Hickey & Sons, Limited Hamilton, Canada

What's Burning

THE following list includes fires of $10,000 loss and over in the United States and Canada for the month of May, 1954.

Month Ending May 31, 1954

Hot Springs, Ark.—The Phillips Drive-In and Willow Room, damaged.
Jonesboro, Ark.—Warehouse of McSwain Glass Co. damaged.
Banning, Cal.—Hadley's Sun Dried Fruit Co. plant and adjoining store, destroyed.
Fresno, Cal.—Enoch Packing Co. and Del Ray Packing Co., dehydrated fruit plants, destroyed; Mondal & Helzer Packing Co. plant damaged.
Hillsborough, Cal.—Dwelling of Francis A. Martin, Jr., destroyed. Basement incinerator.
Los Angeles, Cal.—General Service Studio damaged. Studio produces television stage sets.
North Hollywood, Cal.—Warehouse holding newly made furniture and toys belonging to Leon Manufacturing Co., next door, destroyed.
North Hollywood, Cal.—Blanchard Lumber Co. yard destroyed. Arson.
Sacramento, Cal.—Sears Roebuck & Co. store destroyed.
San Francisco, Cal.—California Cardboard Manufacturing Co. destroyed. Fire set by boy.
San Jose, Cal.—Central Block Building, including Hecker's Jewelry store, Blouses Preferred, Langton's women's clothing store, Simpson's Jewelry Store, See's Candy Store, office of Optometrist Fred R. Hagener, and adjoining Master Cobbler shoe repair shop, damaged.
Santa Fe Springs, Cal.—Rothschild Oil Co. refinery damaged.
Santa Rosa, Cal.—S. & C. Paint Co., Coddling Cabinet Shop, Hunnicut's Body Shop and Village Lumber Co., in Montgomery Village, damaged.
Vallejo, Cal.—Hanlon Theatre damaged. Possible arson.
Lamar, Colo.—Piatt Motor Co. building destroyed.
West Haven, Conn.—Truck terminal of Morris Greenberg and Connecticut Motor Lines, Inc., Allingtown section, damaged.
Newark, Dela.—Newark Lumber Co. plant damaged. Crash of C-45 Air Force training plane.
Brooker, Fla.—Plant of Southern Oil & Chemical Co. damaged.
Zellwood, Fla.—Packing house on Highway 441, destroyed.
Griffin, Ga.—Griffin Elks' building destroyed. Defective wiring.
Savannah, Ga.—Non-commissioned officers' mess club at Hunter Air Force Base, destroyed.
Lewiston, Ida.—Mason-Ehrman & Co. wholesale food distributors, destroyed.
Wallace, Ida.—Seven dwellings of Hecia-Sullivan Mine Workers employees, destroyed.
Chicago, Ill.—Building occupied by Havana Beverage Co., soft drink plant, communicated to scrap metal warehouse, damaged.
Gillespie, Ill.—Maple Street grade school destroyed.
Libertyville, Ill.—Petranek Drug Store, damaged.
Martinsville, Ind.—Wing of Home Lawn Mineral Springs Sanitarium destroyed.
Des Moines, Ia.—Building housing Bill Pratt Cold Storage locker plant, damaged. Defective refrigeration system.
Kansas City, Kans.—Theatre building converted to a garage in the food rehabilitation of Armourdale, destroyed. Spark from acetylene torch ignited gasoline.
Salina, Kans.—F. A. Ostenburg Manufacturing Co. damaged.
Fort Thomas, Ky.—Second floor of luxurious home of Frank P. Stegeman, destroyed.
Richmond, Ky.—Madison Sales Co. stockyards and two nearby dwellings destroyed.
Uniontown, Ky.—Uniontown Mining Co. damaged.
New Orleans, La.—Cayette-Collier Training School damaged.
Arlington, Mass.—Crosby Elementary School destroyed.
Flint, Mich.—Dwelling of Walter P. Love, destroyed. Sparks.
Flint, Mich.—Novak's Hardware & Variety Store, and adjacent shoe store of Keith Bacon, damaged. Defective gas heating system.
Jackson, Mich.—Trojan Castings Co. foundry destroyed.
Lawton, Mich.—Storage building of Lawton Lumber & Coal Co. and building of Budlog Pickle Co., destroyed.
Livonia, Mich.—Barn at Detroit race course, housing 60 horses, destroyed. Carelessly tossed cigarette.
Monroe, Mich.—Muir Drug Store damaged.
Minneapolis, Minn.—Kerr Hatchery Co. building, destroyed.
New Brighton, Minn.—Van Hoven Co., Inc., rendering plant, destroyed.
St. Paul, Minn.—Historic Orange Walker house at Marine-on-St. Croix, one of the oldest houses in the state, destroyed. Spontaneous ignition.
Twin Valley, Minn.—Twin Valley Co-op elevator destroyed.
Kansas City, Mo.—Building leased by Brodkin Furniture Stores, destroyed.
Billings, Mont.—H. H. Barrett apartment building and garage, destroyed.
Camden, N. J.—Two story factory, First Street, destroyed.
Loch Arbour, N. J.—Loch Arbour apartment building and Dewey's drive-in restaurant, destroyed; the Loch Arbour Baths, damaged.
Newark, N. J.—Second Precinct Police Station destroyed.
Perth Amboy, N. J.—Irwin's Furniture Co., dress shop, and delicatessen, in business district, destroyed.
Cairo, N. Y.—O'Connell Hotel, a Catskill Mountain summer hotel, destroyed.
Pike, N. Y.—Combination restaurant and gas station in this Wyoming County village, destroyed.
Rochester, N. Y.—School 17 destroyed. Short circuit.
Valley Stream, N. Y.—Sid Harvey, Inc., an oil burner repair shop, destroyed.
Greenville, S. C.—J. R. Breazeale home destroyed. Faulty motor in refrigerator.
Greenville, S. C.—McCauley Lumber Co. destroyed.
Bismarck, N. D.—Factory of Bismarck Sash & Door Co. destroyed.
Wing, N. D.—Farmers Co-operative Assn., grain elevator, destroyed.
Alger, Ohio—J. Foster Smith Hardware Store and lumber yard, destroyed. Explosion.
Buena Vista, Ohio—Barn at Arabian horse stock farm of Roger Selby, destroyed. Spontaneous ignition.
Rossmoyne, Ohio—Geller & Watkins, Inc., brick plant, damaged.
Washington Court House, Ohio—Sunshine Feed Mill and store, damaged.
Zanesville, Ohio—Elgee Pottery Co. building destroyed.
Oklahoma City, Okla.—The Frontier Theatre destroyed.
Dallas, Ore.—Al's Shopping Center grocery locker plant, destroyed.

CRACKERJACK
MUNICIPAL FIRE HOSE

NONE BETTER

. . . the noticeably better performance of American Fire Hose is the result of skillful, painstaking manufacture. American does not compromise with quality — as a result critical buyers eventually standardize on American.

LAMINATED CONSTRUCTION
5 . . . calendered sheets

FLEXIBLE . . . balanced weave and premium yarn assure greatest strength and flexibility.

SMOOTH WATERWAY . . . lowest possible friction loss.

DEPENDABLE . . . unsurpassed for ruggedness and long life.

LOWEST COST PER FOOT PER YEAR

OTHER AMERICAN BRANDS

WHITE	*TREATED
Crackerjack	Arealized
American	Arealized
Municipal	Arealized
Tiger	Arealized
Underwriters	Arealized

*Treated against mildew and rot; water repellent.

AR-2

ASK FOR BULLETIN

Descriptive literature is available on American Fire Hose — ask for your copy.

THE American RUBBER MANUFACTURING CO.

Factory and General Offices: 1148 Park Avenue, Oakland 6, California, Phone: OLympic 2-0600

Branch Offices: SEATTLE, Smith Tower, Phone SEneca 1727; PORTLAND, Benson Building, Phone CApital 1706; SAN FRANCISCO, 7 Front St., Phone SUtter 1-0068; LOS ANGELES, 711 E. Gage Ave., Phone Ahsma 1-0279

THE AMERICAN RUBBER MFG CO. OAKLAND CALIF.

Write for name and address of your nearest American Distributor

Newport, Ore.—Everybody's Sporting Goods Store destroyed.
Sheridan, Ore.—McCormick Lumber Co. plant destroyed.
Franklintown, Pa.—Shenandoah Floral Manufacturing Co. plant, destroyed.
McSherrytown, Pa.—Plant of Emeco Corp., destroyed.
Nanty Glo, Pa.—American Stores Co. supermarket damaged.
South Philadelphia, Pa.—Waste paper warehouse of Philip A. Sidewater and Co., dealers in waste paper stock, corrugated cardboard, rags and metals, badly damaged.
York, Pa.—William Penn Senior High School damaged.
Society Hill, S. C.—Building housing Palmetto Furniture and Manufacturing Co., Inc., destroyed.
Cleveland, Tenn. — Cleveland - Bradley County VFW Post clubhouse, destroyed.
Jackson, Tenn.—Pittsburgh Glass Co. destroyed.
Groesbeck, Tex.—Old Limestone County courthouse destroyed.
Houston, Tex.—ABC Milling Co. damaged.
Arlington, Va.—Carrier Drug Store damaged.
Koehler, Va.—Nylon fibre yarn stored at Patrick Henry Cold Storage Co., destroyed.
Bremerton, Wash.—Navy's Keyport Torpedo station, two-story barracks, destroyed.
Dayton, Wash.—Masonic Building, Manhattan Tavern and two adjoining stores, destroyed. Faulty wiring.
Hanford, Wash.—Atomic Energy Commission building destroyed.
Pomeroy, Wash.—Pomeroy Post Office building, housing Shaefer's Steak House, Veterans Club and business offices, destroyed.
Vancouver, Wash.—Pruce Hill Grade School damaged. Incendiary.
Milwaukee, Wis.—Apartment building at 1812 E. Belleview Place, damaged.
Pittsville, Wis.—Pittsville Creamery Co. plant damaged. Gas seeping from underground gasoline storage tank.
Thermopolis, Wyo.—Plaza Hotel and apartment building at Hot Springs State Park, destroyed.
New Westminster, B. C.—Building in heart of Fraser River town, destroyed.
Bruxelles, Man.—Main buildings of Ursuline Convent, destroyed.
Ottawa, Ont.—Building in city's business area, housing Cavendish Restaurant, Bridge Club and Ottawa and Bright's Wines Ltd. store, destroyed; adjacent stores occupied by S. S. Kresge Co., Ltd. and People's Credit Jewelers Ltd., damaged.
Seaforth, Ont.—Top Notch Foods, Ltd., feed mill, 30 miles northwest, destroyed.
Toronto, Ont.—Elcraft Manufacturing Co., manufacturers of women's clothing, damaged.
Welland, Ont.—Warehouse of Empire Cotton Division of Woods Mfg. Co., destroyed.
Quebec, Que.—Building housing Hobbs Glass, Ltd., a paint and glass store, destroyed.

Radio Procedure Manual OK'd

Final revisions were made, and approval given, the Manual of Radio Procedure, by members of the Committee on Communications of the International Association of Fire Chiefs at a special meeting held during the National Fire Protection Association Convention in Washington in May. It is expected that the I.A.F.C. will soon begin publication of the Manual, which will bear the names not only of I.A.F.C., but also of the National Board of Fire Underwriters, International Municipal Signal Association, National Fire Protection Association and International Association of Fire Fighters. The text has already been submitted to the Federal Communications Commission.

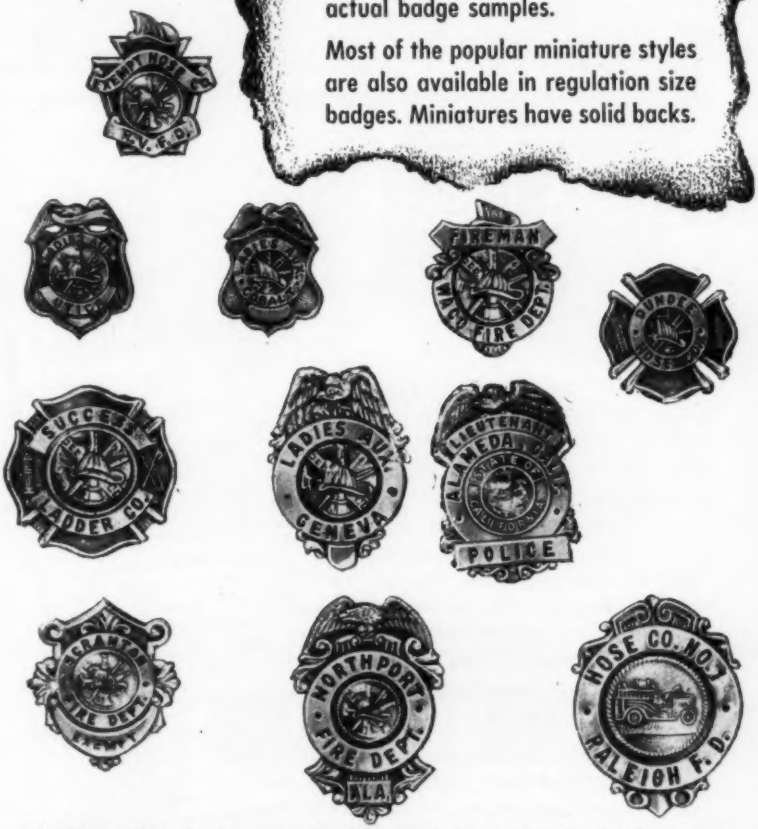
Chief Roi Woolley, Assistant Editor of FIRE ENGINEERING, has headed the Committee, which has labored for over two years to complete the document. Members of the Committee are: Deputy Chief Thomas P. O'Brien, New York; Chief William Fitzgerald, Seattle, Wash.; Chief Stuart Potter, Greenwich, Ct.; Chief Fred Wells, Fargo, N. D.; Chief Joseph Giammatteo, Glen Echo, Md. Also George Swan, National Board of Fire Underwriters; George Richardson, International Association of Fire Fighters; William J. Scott, Toronto, Ont., and Warren Y. Kimball, National Fire Protection Association.

You should own a handsome MINIATURE Fire Fighter's Badge

Whether you are a "Regular" or a "Volunteer" a miniature badge is a must for off-duty recognition. Carry your miniature with pride, it's a small token of your contribution to your community.

Contact your Blackinton Badge Dealer today and ask him to show you actual badge samples.

Most of the popular miniature styles are also available in regulation size badges. Miniatures have solid backs.



Blackinton has the largest selection of miniature badges in the country

BLACKINTON
V. H. BLACKINTON & CO., INC.
ATTLEBORO FALLS, MASS.

Havana F.D. Fights Garage Fire

Fire companies from three Havana, Cuba, stations fought a winning battle to prevent extension of a hot fire in a garage in that city recently, and utilized American methods and equipment in their operations.

The garage occupied an area of 50 ft. by 100 ft. and included filling station and pumps, paint shop and repair shop. The fire reportedly started in the paint shop, where a drum of lacquer was ignited by a spark. The fire spread rapidly and produced a heavy pall of smoke which could be seen from all parts of the city.

Firemen from three stations reported on the alarm, arriving at 4:30 P.M., with three triple combination pumpers, one pumper, and one tanker.

The triples, all high pressure pumps, led the attack on the fire because of scarcity of water at the nearest hydrant. The pumper was hooked to this hydrant but could only deliver a single ineffective stream.

Firemen used three 1½-in. lines from the triple combinations and one 2½-in. line from the pumper. The fire was kept from the filling station but the garage proper suffered heavy loss.

First arriving fire fighters attacked the fire with a single 1½-in., having a layout of only 100 ft. from a triple combination unit. Before other units could get into operation, the one-story building collapsed, and all operations had to be directed toward covering exposures, the most hazardous of which was a wooden bungalow located only five feet from the burning garage.

Judicious use of water prevented extension of the fire to this structure, although the back porch was ignited at one time.

By 6:30 P.M. the firemen had extinguished the fire and returned to their stations. There were no casualties among the fire fighters.

Investigating the cause of the fire, it was disclosed that when the fire started, employees first attempted to fight it using various types of extinguishers, but without success. Then they called the fire department.

—A. Dominguez, Jr.

Hospital Porters Booked for Fire

Two Paterson, N. J., hospital porters were booked on drunk and disorderly charges early in March, after a fire in a storage room of the Paterson General Hospital was attributed to their careless smoking.

Arrested were Edward Forsythe, 50, and Dennis Tigue, 60, who reside at the hospital. The fire caused $200 damage to the storage room and was quickly extinguished by the Paterson Fire Department, with most of the hospital patients unaware of the excitement.

According to Fire Chief G. Hobart Strathearn, the men were given hearings before Acting Magistrate Vincent A. Duffy in Municipal Court and held on bail of $3,500 and $2,500 respectively. Forsythe admitted he threw a lighted cigarette into a trash barrel.

Incidentally, said Chief Strathearn, there is no state or local laws or ordinance covering cases such as this; therefore the fire department is forced to make a charge of "disorderly person" to punish them for such an offense. The Chief is endeavoring to secure passage of legislation that would make a severe fine for such act mandatory.

Quick Control of Oil Well Fire

An oil well fire in Oklahoma that burned for 40 hours, causing $40,000 of damage, was extinguished in exactly five seconds with a single 30-pound dry chemical fire extinguisher recently. Biff Hansen, fire chief at the Continental Oil Refinery in Ponca City Okla., who was called in to fight the outside blaze, estimated that only ten pounds of the dry powder was used to put out the fire.

The fire started when gas blew out of the oil well hole at 1,350 feet and was ignited by the exhaust from a diesel engine. Flames leaped into the air, burning up gas at a rate of a million cubic feet every 24 hours.

City and industrial fire fighting units rushed into action but the blaze roared on.

Nearly 40 hours after the blaze started, Chief Hansen at Continental Oil, located 24 miles away, was asked to send both equipment and personnel.

He dispatched an Ansul 350-pound wheeled unit and three 30-pound portable extinguishers.

Arriving at the well, Hansen and his assistant, Floyd Timmons, decided a single hand extinguisher could handle the job. Then Timmons waded in and hit the source of the flames, extinguishing the fire in five seconds.

The CHALLENGER needs no help!

The Sharpsville Challenger can be equipped for both high pressure fog and volume. Thus, you can have either at your command, as needed. You can handle a vast majority of your calls with this equipment alone. Other Challenger models are furnished with piston or centrifugal high pressure pumps or with single or multiple stage volume pumps only. Tank size and auxiliary equipment is available to suit your needs.

Write for complete information

Tank Truck Fire Scorches Homes

Fog Hoses Avert Holocaust

A tank truck, loaded with 4000 gallons of cleaning solvent, became a roaring inferno yesterday that burned down power and telephone lines and imperiled nearby homes in an east side residential area. Flames shot as high as 200 feet into the air and billowing clouds of black smoke filled the area.

City firemen, not equipped for fog, fought the blaze for three hours before fog equipment from a neighboring volunteer company was called and finally extinguished the fire.

SHARPSVILLE STEEL FABRICATORS, Inc.

Sharpsville, Pa.

Established 1860 Incorporated 1907

Builders of Service, Crash and Ladder Trucks • Volume and High Pressure Pumpers • Squad and Emergency Cars • Storage Tanks

News of the Manufacturers

(*Continued from page 497*)

presently is a member of the Public Information Committee of the American Supply and Machinery Association. He is also a charter member and director of the Industrial Marketers of New Jersey.

RCA Introduces Push Button Tape Recorder

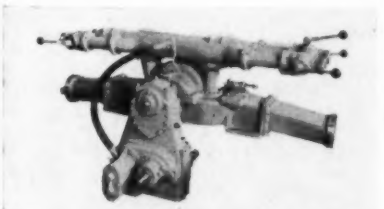
Radio Corporation of America, Camden, N. J., has produced a new push-button tape recorder for magnetic recording, which has numerous features that should interest fire and signal offi-

New RCA tape recorder.

cials. It starts, stops, records and plays back at the press of a finger. It measures 14" x 12" x 9"; weighs 26 lbs.; uses all size reels up to 7"; has two operating speeds: 3.75" and 7.5" per second; operates on 105 to 120 volts (60 cycle a.c.); power: 70 watts. Recording or playing time is said to be up to 2 hours.

Waterous Announces New 1500 GPM Fire Pump

A new 1500 GPM "Class A" centrifugal fire pump was recently announced by the Waterous Company, St. Paul, Minn. It has been designated the "Model CD-4."



Waterous Model CD-4—1500 GPM centrifugal pump.

According to Fred A. Waterous, president of the St. Paul firm, the new CD-4 was developed specifically for performing a 1500 GPM, "Class A," underwriters test at a 10-ft. lift through a single line of 6" suction hose at most locations. The standard industry practice heretofore has been to use double 5" suctions, and/or to compromise standard underwriters requirements to whatever lifts below 10

Chief—

What a difference the

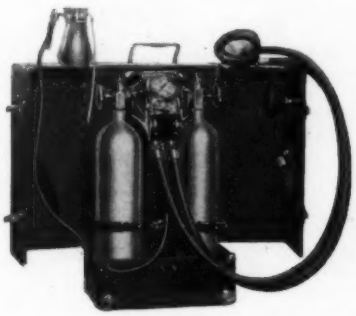
STEPHENSON RESUSCITATOR

makes when your *own* men are in danger from suffocation, electric shock, heart attack, etc.

You have the assurance of the better equipment to combat these conditions with Stephenson Resuscitators.

Leading fire departments throughout the country have learned from experience that the Stephenson Resuscitators are the most efficient, simplest to operate and do the most for patient.

Effective — Safe — Simple — Dependable



Saves Lives,

Protect Your Community, Increase Your Department's Reputation and Prestige, with the New, Improved

STEPHENSON RESUSCITATOR

Write today for free demonstration or send for free booklet F-106.

STEPHENSON CORPORATION

RED BANK *NEW JERSEY*

Makers of the Harger Drunkometer, used all over in industry and police departments including New York.

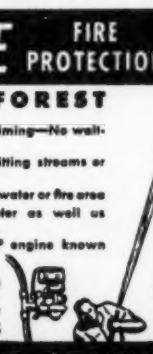
Write for Bulletin 6600-F

WEIGHS ONLY 110 LBS

MORE **EFFECTIVE** FIRE PROTECTION

CITY • RURAL • FOREST

MODEL 6600 PUMPER—Instantly Self-Priming—No waiting when seconds count
HIGH PRESSURE—Use one or two hard-hitting streams or fire-blanketing fog-spray
LIGHT WEIGHT—Easily carried to source of water or fire area
NEOPRENE IMPELLERS—Pump dirty water as well as clean water—assure long life
POWER—Efficient 4-cycle, air-cooled 5 HP engine known and serviced world-wide
BY-PASS VALVE, SPRING LOADED GREASE CUP, NO LOSS OF PRIME, PLUS MANY OTHER FEATURES



UP TO 40 GPM AT 150 PSI

MARINE PRODUCTS COMPANY

515 LYCASTE AVENUE • DETROIT 14, MICHIGAN

feet are necessary to develop rated capacity.

Although Waterous states that the CD-4 is a completely new pump, it retains the basic design features found in other Waterous pumps. These include the Waterous horizontally-split two-piece pump casing, readily accessible split-gland type stuffing boxes, and oil lubricated impeller shaft bearings located outside the pump casing.

Additional information on the CD-4 may be obtained by writing Waterous Company, 70 East Fillmore Avenue, St. Paul 1, Minn.

Bulletin on "Wet Water"

Aquadyne Corporation, 441 Lexington Avenue, N. Y. 17, N. Y. has just issued a new booklet "Fire Fighting With Wet Water." It explains the Pyrodyne system of Pyroblender and Pyrodyne cartridges for making wet water as needed. Each cartridge makes 1000 gallons to be used with 1½-inch booster hose on Class A and B fires. No storage or mixing tanks are needed as the Pyroblender is installed at discharge side of pump. Copies of the bulletin may be secured upon request.

Oren Roanoke Appoints New Chief Engineer

Oren Roanoke Corporation, Roanoke, Virginia, has announced the appointment of Phil J. T. Rawlins as Chief Engineer. Mr. Rawlins has been prominent in automotive engineering circles for many years, is a graduate of M.I.T., and for the last several years served as Chief Engineer of the Corbitt Company, motor truck manufacturers. He will have direct supervision over development, design, and building of Oren's special fire truck chasses, which operations have recently been consolidated at the Roanoke Plant of Oren Roanoke Corporation. This consolidation brings the entire operation of chassis assembly, fire equipment assembly and finishing, as well as replacement parts service into one location which will provide faster service to all customers.

Safety Box for Extinguishers

So that fire extinguishers will not be tampered with or disturbed in any way when they are needed, Erie Safety Products Co., 6405 Bridge Ave., Cleveland 2, Ohio, recently placed on the market the Tam-Pruf fire extinguisher safety box.

Tam-Pruf Fire Extinguisher Safety Box.

This box is painted red so that it is readily spotted when the extinguisher is needed. Locked by a padlock and seal which is quickly broken by easy pressure of the hand against the breaker-arm, the safety box opens to permit removal of the extinguisher—the glass seal falling into a special receptacle. This prevents injury from flying glass or ragged edges. The padlock remains in a locked position on the side of the safety box. A new seal can be inserted when the box is ready to be relocked.

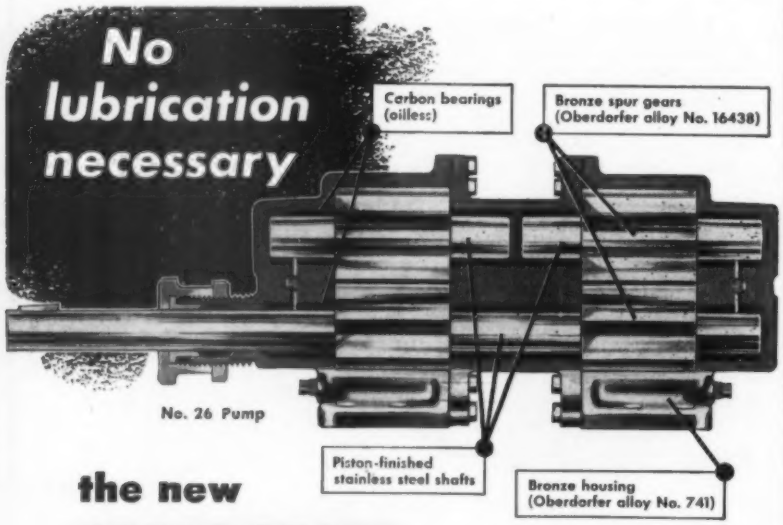
This safety box has glass panels on either side to allow easy inspection to be sure the fire extinguisher is ready for use.

Pyrene and C-O-Two Unified

S. R. Baker, Chairman of the Board and President of the Pyrene Manufacturing Company and its wholly owned affiliate, the C-O-Two Fire Equipment Company, has just announced that the unification of the two organizations is rapidly nearing completion with the election of the directors and officers to serve for both companies during the ensuing year.

Directors are S. R. Baker of New York, New York, Meyer Botwinik of New Haven, Connecticut, M. A. Laswell of Summit, New Jersey, Harry Levine of Leominster, Massachusetts, Louis Levine of Leominster, Massachusetts, A. F. Ratzer of Chatham, New Jersey and Chester Rohrlich of New York, New York.

Officers in addition to S. R. Baker in-


No lubrication necessary
Carbon bearings (oilless)
Bronze spur gears (Oberdorfer alloy No. 16438)
No. 26 Pump
Piston-finished stainless steel shafts
Bronze housing (Oberdorfer alloy No. 741)

the new

OBERDORFER

BRONZE BOOSTER PUMPS

These booster pumps with oilless bearings will last 3 to 5 times longer than the old style equipped with plain bronze bearings. As a result of closer machining tolerances, over 20 feet of suction lift may be depended on.

The No. 13 and No. 26 Oberdorfer Pumps are more fool-proof than they have ever been. When you get to a fire you have something you can count on. It isn't necessary to wear pumps out checking them periodically to see if they will work. These pumps are metering pumps in principle and therefore must produce the same volume for every revolution of the drive shaft.

PERFORMANCE DATA—No. 26 and No. 13 PUMPS

Pump No.	Pump Shaft R.P.M.	Pounds Pressure	Hose Length and Size	Dry Suction Lift in Feet	Vol. in Gal. Per Minute
26	1600	120	500'—1½"	20'	150
13	1600	120	500'—1½"	20'	75

FIRE PUMP DIVISION, Oberdorfer Foundries, Inc., Syracuse, N. Y.

clude: F. B. Allen of Towaco, New Jersey, M. A. Laswell, Louis Levine and A. F. Ratzer as Vice Presidents; Meyer Botwinik as Treasurer; B. S. MacCabe of South Orange, New Jersey as Secretary; and J. R. Zelenka of Morristown, New Jersey as Assistant Treasurer and Assistant Secretary.

The unified companies have general offices and factories in Newark, New Jersey and manufacture a complete line of approved fire protection equipment. Among the many items manufactured are all types of fire extinguishers, air foam compounds and playpipes, high pressure and low pressure carbon dioxide fire extinguishing systems, air foam fire extinguishing systems, as well as smoke and heat fire detecting systems.

Additional Exhibitors at I.A.F.C. Conference

Since publication of the list of forty-three exhibitors at the Houston Conference of the International Association of Fire Chiefs, in the May issue of FIRE ENGINEERING, Chief L. C. Canning, Exhibit Chairman, reports that eight more exhibit spaces have been sold. These include: Powhatan Brass & Iron Works; Mars Signal Light Company; American - LaFrance - Foamite Corporation; Waukesha Motor Company; Eureka Fire Hose, Division U. S. Rubber Co.; Super Vacuum Manufacturing Company; Delco-Remy Div., General Motors Corp.; and Radio Apparatus Corporation.

Fireworks Bill Assured

On May 25th the House accepted the Senate changes made in the proposed Federal fireworks bill, and sent it to the White House for the President's signature.

The Bill is designed to prohibit shipment of fireworks into states where they are banned by law. The proposed statute would not be effective until July 1, 1954. By that time most fireworks intended for use in July will have been shipped.

Fire service organizations teamed up to urge passage of the measure.

Montgomery County Gets Radio

A central radio transmitting station, linking all Montgomery County, Pa., with radio-equipped fire companies should shortly be in operation.

The Fire Chiefs' Mutual Aid Association of the County has authorized purchase of the base station equipment after more than two years of planning and investigation into countywide radio communications.

Charles Lenz, assistant chief of West Point, Pa., chairman of the radio committee, said the base station, to be operated 24-hours-a-day, will be manned by volunteers.

Puts It Into Words!

According to one of our foreign correspondents there's an Austrian gadget that is far more effective than "No Smoking" signs for preventing fires. The device actually detects smoke and shouts a recorded message *"A fire-raiser is smoking here."*

CAIRNS

PERSONAL

EQUIPMENT

FOR

FIREMEN

TURNOUT SUITS RUBBER COATS RUBBER BOOTS
RUBBER-LINED MITTENS ASBESTOS GLOVES
SAFETY BELTS OFFICERS' BELTS CAPS BADGES
SECRETARY'S RECORD BOOKS
LOOSE-LEAF FIRE RECORD BOOKS
SECRETARY'S BLANK FORMS

• • • • • • •

HELMETS

Write for Catalog 341

CAIRNS & BRO., Inc. Allwood, Clifton, N. J.

SINCE 1836

FIRE-FIGHTING GETS A VERSATILE ALLY

UNDER DOCKS AND BRIDGES

IN DEBRIS-FILLED WATERS

IN SHALLOW MARSHY AREAS

UNDER FLOOD CONDITIONS

This JET NOZZLE

Does Everything!

in the NEW KERMATH HYDROJET

AVAILABLE WITH KERMATH 61 H.P. SEA-JEEP ENGINE

This amazing new propulsion unit has been developed to propel water craft without a propeller or rudder by taking water from outside the boat and discharging it as a high speed jet stream under the stern.

A simple connection provides a high or low pressure water stream for fire fighting, using standard hose. Because there are no moving parts under water, a Hydrojet-powered boat can operate with 100% efficiency in shallow and debris-filled waters, beneath docks and bridges, in marshy areas and under flood conditions where ordinary fireboats would be at a disadvantage.

For informative literature and specifications, write to—

KERMATH MANUFACTURING CO.
5885 Commonwealth Avenue—DETROIT 8, MICHIGAN
Canadian Plant: Kermath (Canada) Ltd., 619 King St. W., Toronto 2, Ontario
A SUBSIDIARY OF BARIUM STEEL CORPORATION

Annual Reports Received

L.A. County Annual Report

Fast-growing Los Angeles County now covers an area of 286 sq. mi., has a population of over one million, and gross valuation of $1,044,363,640, according to the 27th Annual Report of the L.A. County Fire Department, Chief Keith E. Klinger.

During 1953, the Fire Department in all branches had 12,835 primary responses; 11,122 assisting responses; 1,409 move-ups, or a total of 25,366 individual responses to alarms. Total fire losses were: structural, $3,073,833; non-structural, $3,572,140. The Department made 304 mutual aid responses during 1953 to incorporated cities and other cooperating agencies.

The 52-page, plastic bound report is packed with pertinent statistical and pictorial information concerning the County's extensive and outstanding fire force, its administration and operation.

* * *

City of Leicester, England, Reports

The Annual Report of the City of Leicester, Errington McKinnell, Chief Officer, for the year 1953, is a comprehensive document. The reduction of total calls amounting to 159 from the previous year is attributed to fewer chimney fires, resulting from milder weather. Total calls were 1,423, of which 175 were false (82 being "malicious," 79 with "good intent" and 14 from mechanical defect). It is interesting to note that malicious false alarms were not confined to box, but also equally divided between that and telephone exchange. In 1953 there were 43 malicious false box alarms and 39 telephone exchange alarms, compared with 36 and 36 in 1952.

No property loss data are given.

* * *

Fire Calls in Melbourne

Total number of fire calls handled by the Melbourne (Australia) Metropolitan Fire Brigade dropped from 5,418 in 1952 to 4,833 in 1953, according to the Brigades Report for the year ending June, 1953. Damaging fires were considerably less than the year previous.

The Report of Chief Officer L. P. Whitehead, M. I. Fire E., J. P., shows the Brigade has 43 stations; 637 fire fighting staff, all ranks; 1,649 street fire alarm call boxes, and 756 private fire alarms, connected to 2,938 auxiliary alarms.

* * *

Tacoma Park Has Low Per Capita Loss

Per capita fire loss based on 27,000 population of the area covered by the Tacoma Park, Md., Fire Department, Fire Chief Melvin E. McBride, amounted to only $0.658 in 1953, according to the Fire Department's annual report. Total fire loss was $17,509.50. Total hours of service rendered the city was 5723 of which 2862 were for emergency work, and 2861 for training.

Thanks, IRVING JOHNSON.

* * *

Dawson City, Yukon, Operations

There were 38 alarms received in 1953, according to the Dawson City Fire Department report, with total fire damage amounting to $1,540.29. Chimneys and grass, and the city dump, gave the firemen most trouble. E. Gaundreau, is Chief at Dawson.

* * *

Ohio Reports 15,861 Fires in 1953

According to the News Letter of Charles R. Scott, Ohio State Fire Marshal, last year there were 15,861 fires reported in that state with monetary loss of $32,762,476. The number of fires decreased from the year previous by 44, but losses increased by $3,224,652.

For the month of January, 1954, the state's fires increased from 1,132 in 1953 to 1,576 this year, and losses rose from $2,203,468 to $3,170,910.

* * *

Forth Worth Losses Up in 1953

Estimated total fire losses for the City of Fort Worth, Texas, in 1953 were $2,494,177.61 according to the annual report of Fire Chief Paul C. Fontaine. Average loss per building fire rose from $995.05 to $1,600.88 while, oddly enough, fire alarms dropped from 5,415 in 1952 to 4,122 last year. The department ran a total of 587,418 blocks, was in service 5501.02 hours.

Chief Fontaine's report is replete with vital statistics, and includes data on every fireman in the department, as well as photographic illustrations of new fire stations and fires.

* * *

Charlotte Report a "Selling Document"

The Annual Report of the Charlotte, N. C., Fire Department, Chief Donald S. Charles, is both a statistical record

POWHATAN

QUARTER TURN SHUT-OFF SIAMESE

COMPACT DESIGN.

POSITIVE AND EASY SHUT-OFF UNDER ANY PRESSURE.

PLATE 175

MADE OF HIGHEST GRADE RED METAL.

MINIMUM UP-KEEP EXPENSE.

SWIVEL SUPPLIED WITH PIN LUGS OR OUR **SENSIBLE LUGS** (ROCKER LUG TYPE).

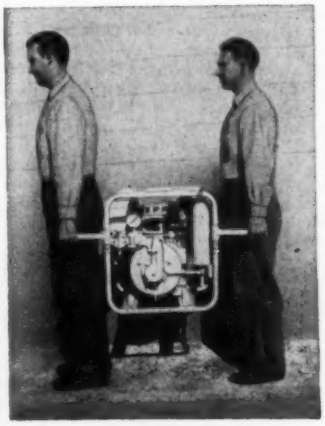
This is but one item in our vast line of precision tooled, strongly built, brass fire-fighting equipment. Since 1892 our single aim has been—improvement of our products—and repeat orders from Fire Departments all over the United States have proven the value of such a policy.

BE SURE TO CONSULT POWHATAN BEFORE PLACING YOUR NEXT ORDER.

POWHATAN BRASS and IRON WORKS
RANSON, WEST VIRGINIA
Phones 93 & 94 Charles Town West Virginia
Established 1892

HALE Type FZZ

- Quick-Starting
- Portable
- Compact
- Powerful
- Versatile



Above—Frame-mounted FZZ can be easily carried by two men. It is also available mounted on rubber cushioned steel channels, or on two truck-type wheels.

Fire Companies frequently write us telling of the many practical ways they use their portable Hale type FZZ, such as the following:

- For fighting field or forest fires from moving trucks.
- For "wetting down" and standby use, thus releasing major equipment.
- For pumping out flooded cellars and elevator shafts after fire, flood or other emergency.
- For relaying water to pump or booster tank from sources inaccessible to major Fire Pumpers.
- For factory protection in fighting fires before major equipment arrives.
- For fighting oil or other type fires requiring foam. (Built-in foam proportioner available when specified.)

The FZZ will supply from draft, 60 GPM at 90 lbs. pump pressure; and 100 GPM at 70 lbs. Can supply two capable streams through 1½" lines, using nozzle tips up to ½".

Note: Discharge Adapter can be supplied for use with 2½" fire hose.

Write for new folder today.
Ask for Demonstration.

HALE FIRE PUMP COMPANY
CONSHOHOCKEN PA.

Fire Pumps in All Standard Capacities

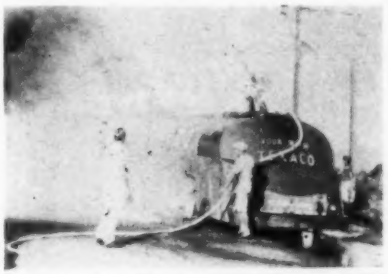
and a piece of good promotion for the department. It is mimeographed, but contains excellent line illustrations of apparatus, charts, etc. Operations are detailed by company units as well as by total department.

In 1953 the department responded to 4,939 alarms, of which 2,093 were box, 1,544 telephone, 1,238 still and 64 verbal. Total blocks run were 114,705; hours of service 2,274.2.

Fire losses for the year were $650,-397.29 compared with $648,068.79 in 1952.

New Truck Gets Baptism of Fire

The new pumper of the Marathon, Fla., Fire Department, Chief R. O. Bushea, which was proudly installed by the vamps last October 31st., got its baptism of fire less than a month later (November 18th) when the department was called on to fight a fire in a blazing 5,400-gallon gasoline transport truck.



Marathon, Fla., firemen extinguish fire in 5400-gallon gasoline truck.

The transport, a tandem job with eight tires and carrying a full load, was proceeding on the Overseas Highway about 15 miles from the Marathon Fire Station, when a tire blew out. The momentum of the heavy rig carried it 1,500 feet before the driver could stop it. Parts of the tire were strewn all along the Bahia Honda Bridge. Before the driver could use his 15 lb. carbon dioxide extinguisher on the flames, they communicated to the discharge and pump compartments of the vehicle.

This was at 7:16 A.M., and the Marathon Fire Department received the alarm at 7:50 A.M., reaching the scene at 8:05 A.M.

The new pumper is a 500 G.P.M. unit, having a 500-gallon tank with two connected booster lines and a gated 2½-in. outlet for the pump.

The volunteers wasted no time getting to work on the blazing transport and the burning telephone poles. They used up their 500-gallon booster supply in five minutes and then got their pump to draft. Two 1½-in. fog nozzles were used to extinguish the fire underneath the transport and to cool its tank. By 8:29 A.M., they had the blaze under control and then got a man atop the tanker from which vantage point he was able to operate fog into the openings. The fire was out at 10:34 A.M. with approximately 3,500 gallons of gasoline left intact. This was dumped and flushed into the nearby bay. The damaged truck was then shoved off the highway and traffic allowed to resume.

The whole operation, which received much credit in the press and from spectators, more than justified the investment in the new pumper, and the new fire station in which it is housed. The Marathon Fire Department is now definitely in the big time.

WOULD YOU BUY A RIG LIKE THIS?

No up-to-date department would use an obsolete wagon like this, yet many are still using old-time fire helmets. There's as much difference between *new* Bullard Fiberglas helmets and others as there is between the above rig and the trucks you use today. Fiberglas helmets surpass all standard drop and dielectric tests, yet are lighter—more comfortable to wear. Test them yourself. Discover why more and more modern departments are switching to Bullard Fiberglas fire helmets. Your choice of permanent molded-in colors.

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E. D. BULLARD COMPANY
DISTRIBUTORS THE WORLD OVER
275 Eighth Street, San Francisco, California

Bullard Universal Gas Mask with SMOKE EATER cannister

Approved respiratory protection in atmospheres containing 16% or more oxygen. Special filter gives protection against toxic fumes, dusts, mists, fogs and smokes.

Havana Fire Department

(*Continued from page 495*)

one auxiliary pumper; two 100-ft. aerial ladders; one floodlight truck, and one service truck.

The floodlight unit, three of the triple-combinations using front-mounted two-stage high pressure pumps, and the auxiliary pumper, which is also a derrick truck with a front-mounted two-stage high pressure pump, were all built at the workshop under the direction of Lieut. Col. J. F. Morales. More trucks will be purchased within the next few months, it is reported. Also a two-way FM radio system has just been installed.

The Havana Fire Department (Departments de Seguridad Publica) is under the command of Brigadier Jesus Balbuena, Director in Chief and Col. Sinesio Cuesta, 2nd Chief, assisted by a competent staff. At present the Department has 250 men in the line, and a fire college which keeps men well trained in the latest methods of fire control and extinguishment.

The principal problem faced by Havana fire fighters when they arrive at a fire is the scarcity of water. Notwithstanding this handicap, they get into action very quickly, by using the triple-combination units having 1,000 gallon water tanks, and front-mounted two-stage high pressure pumps. For the most part, when drafting water they use the standard pumping units, where necessary placing two pumpers in relay.

The Fire Prevention Department, in charge of Commander Manuel Garcia, carries out all inspections of stores, industries, theatres, etc. This work is credited with helping hold fires to the minimum.

The Department also handles flood situations and other disasters and operates the Ambulance Service of the municipal hospitals.

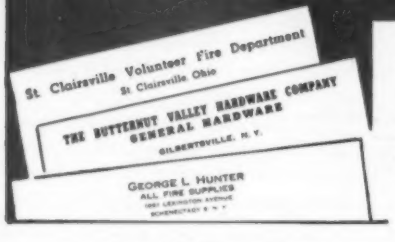
There are no fire alarm boxes in the City of Havana. Fire alarms are given by the public telephone, or by the Police Department official telephone. It is said that the system makes false alarms difficult because telephone calls reporting fires are confirmed, first by the lieutenant in charge of the telephone, before sending the apparatus out; if the existence of the fire is confirmed, he calls the company in the district of the fire, giving it the "situation of the fire." If he is convinced by the Police, or the person who gave the alarm, that it is a big fire, that is, that the fire is in a lumber yard, distillery or other high hazard, he calls *all* companies and sends them to the fire. Also, as soon as the triple-combination arrives at the fire, the officer in charge of the company reports to the Central Headquarters if the fire is an incipient one, without importance, or will ask for more help if the fire is a serious one. This is done using the nearest available telephone to the fire. This system will be revised as soon as the radio telephone system is in full operation.

It is interesting to note that when the Fire Department goes out of the city to render aid—to places where there are no organized fire forces—or to cooperate with other departments, no charge is made for the service. In some instances, the Havana Department has traveled as much as 100 miles and about all the firemen hope to receive—when those they have aided are particularly generous—is the repayment of the fuel consumed in the journey.

Among the serious fires fought by the Department was one in a paper depot, which struggle lasted six days; one on the waterfront, which destroyed three piers; and the one which caused very heavy damage to the main building of the F. W. Woolworth Co. The latter two fires were controlled in a matter of three to four hours despite the fact that these were very hot fires.

SAVING FIRE LOSSES EVERYWHERE!

THE DUAL FIRE FIGHTER



★ AS A BOOSTER PUMP
It will deliver 175 g.p.m. through 300 ft. of 2½-in. hose to the top of a hill 50 ft. high.

★ FOR FIGHTING FIRE DIRECT
It will throw 100 g.p.m. at 80 lbs. or 80 g.p.m. at 88 lbs. pressure — capacity sufficient to supply two 1½-in. lines.

★ PRIMES IN 15 TO 30 SECONDS
It weighs only 162 lbs. Equipped with carrying handles.

★ EASILY CARRIED BY TWO MEN

Ask for Bulletin No. 9-FD-11

LOUDON FIRE DEPARTMENT
LOUDON, N. H.

The Gorman-Rupp Company
Mansfield, Ohio

Dear Sirs: Had a rather serious woods fire last spring during which I had eight fire departments and several hundred men on the lines for two days. It was Sunday, May 7th, a class V fire day and a twenty-five-mile wind blowing. A successful stand was made along a narrow road with a pumper or hose line standing by each set of buildings for three-quarters of a mile. In the middle of this was a considerable stretch without buildings except for a school house but with plenty of material for the fire to feed on.

Dropped a suction line from our Gorman-Rupp into what appeared to be a limited amount of swamp water, pumped continually for over three hours during which the twin 1½" lines saved the school house after which they were reversed and carried to assist in saving a set of farm buildings.

During the mop up that followed a dormant finger of the blaze sprang to life and raced out of control until the Gorman-Rupp was carried a quarter mile from any road and again went to work supplying two long 1½" lines greatly shortening the time to control and confining it to a comparatively small area.

We are planning on one or two more portables in the near future — they will be Gorman-Rupps.

Very truly yours,
J. W. ROBINSON
Chief

Complete copies of letters on request

THE GORMAN-RUPP COMPANY
MANSFIELD, OHIO

National Board Recommends Improvements for Bridgeport

(*Continued from page 496*)

1953, by Gordon C. Anderson, Arthur H. Sellick, Warren M. Apgar, and Harold Hilston, engineers, and Anthony J. Mileo, Eugene H. Okrent, and Marvin Marshall, assistant engineers.

Bridgeport was given a Class Three grading by the N.B.F.U., the same as it received in 1944, when the previous survey was made. In some categories the rating was slightly lower, and in others it remained the same.

Other major fire protection improvements recommended were adoption of complete modern fire prevention code, a comprehensive building code conforming to modern requirements for construction, increased personnel for the office of Inspector of Combustibles to conduct an organized and effective fire prevention program, and an increased electrical inspection force to make adequate inspections.—TOM MAGNER

Persons in the News

Elmer C. Gates, Chief, at Las Vegas

Elmer C. Gates has taken over as new chief of the Las Vegas, Nev., Fire Department.

Chief Gates formerly was assistant chief at Santa Ana, Calif.

Photo Courtesy Las Vegas Sun
Chief Elmer C. Gates

He replaces Asst. Chief Doug Williams, who has been acting chief for the past year.

The Las Vegas F. D. operates five engines and one 65-foot aerial out of three stations.—CLIFF DEKTAR

Peterson Appointed South Gate Chief

Guy E. Peterson, 50, recently was appointed Chief of the South Gate, Calif., Fire Department.

Peterson, assistant chief since 1951 and a South Gate fireman for 22 years, will command three fire stations and a force of 48 firemen.

Chief Peterson succeeds David F. Glines, who organized the department in 1927 and whose request for disability retirement was recently approved.

PAUL C. DITZEL

Chief Leaves Post to Become Postmaster

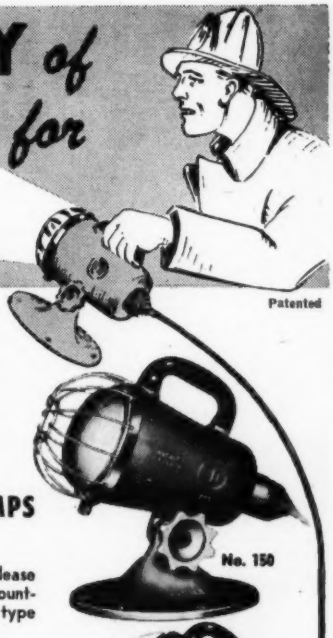
A. Nelson Yearick, for many years chief of the Lewistown, Pa., Fire Department, has resigned his post to disassociate himself from any municipal office in order to facilitate his appointment as Lewistown Postmaster.

To fill out his unexpired term (normally to expire in November), Harry E. Sheaffer, a member of the City Hook & Ladder Company of Lewistown, was elected Fire Chief of the Borough. The election meeting was attended by three members of each of the four fire companies of the Borough and three members of the Borough Council.

The Committee of fifteen will meet later to vote for Fire Chief for a period of two years.

Shaeffer, a captain of the Fire Department for many years, has long been ac-

PLENTY of LIGHT for any Emergency



Patented

Circle-D portable flood or spot lights. Designed and built for the tough assignments of any emergency. Circle-D lights are preferred by emergency crews for their compact size that makes them easy to handle and carry as well as store on emergency trucks. Circle-D portables with full power sealed beam lamps are available for 200 - 300 - 500 - 750 and 1000 watt. For the finest in portable lighting insist on Circle-D.

QUICK RELEASE HOLD DOWN CLAMPS

Bronze Chrome plated quick release clamps are available for easy mounting of Circle-D lights on every type of emergency equipment.

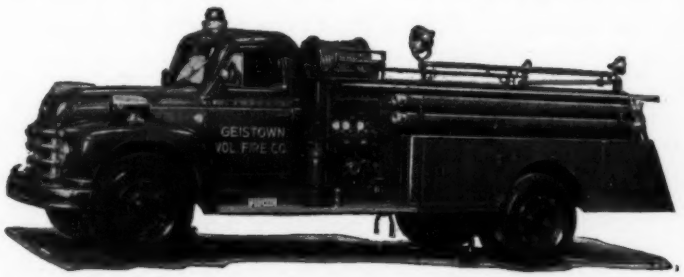
SEE YOUR FIRE EQUIPMENT DISTRIBUTOR OR WRITE

No. 150

No. 163

NATALE MACHINE AND TOOL CO.
339 STATE HIGHWAY 17
CARLSTADT 3, N. J.

Champion Fire Apparatus



A highly efficient pumper apparatus with the Champion Three Stage Centrifugal Pump powered by Diamond T. The Pump is the Type SH750 which delivers 750 gallon Underwriter performance plus 60 gallons per minute at 850 lbs. for high pressure fog.

Or this Darley Apparatus is also available in Underwriter capacities of 600 GPM and 500 GPM. Modern commercial truck motors have adequate power for either 750, 600 or 500 GPM pumps.

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EVERYTHING FOR FIRE DEPTS.

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W. S. DARLEY & CO., CHICAGO 12

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tive in the work of the department. He is now chief clerk of the Mifflin County Commissioners.

P. J. Quane Chief of Richland

Patrick J. Quane has been named Richland, Wash., Fire Chief, replacing Chief Ray H. Hare, who retired May 31, 1954.

Replacing Quane as Assistant Fire Chief is C. M. Wight who was a captain in the Richland Fire Department.

Quane, who assumed his new duties June 1, is a Hanford old timer. He joined the duPont Company as Assistant Fire Chief at Hanford, in July, 1943, during initial plant construction. He transferred to "operations" with duPont in February, 1945, and remained at Hanford when GE assumed responsibility for operation of the plant, in September, 1946. In April, 1948, Quane was named Assistant Richland Fire Chief.

C. M. (Milt) Wight, who succeeds Quane, was the first full-time Fire Chief for the city of Pasco, Washington, and later was Fire Chief for the Corps of Engineers at Pendleton Air Base and McCaw General Hospital at Walla Walla. Wight was Fire Chief of Kittitas County Rural Fire District #2, at Ellensburg, from January, 1946, until he joined General Electric as a Fire Department Captain at Hanford, in August, 1948.

Upon his retirement, Chief R. H. Hare ended more than 44 years in fire protection work, eleven of which were spent as a Hanford and Richland Fire Chief. Chief Hare was retired with 33 years of service from the Yakima Fire Department, shortly before joining the duPont Company at Hanford in May, 1943.

Johnson Chief at Leominster

Frederick W. Johnson has been appointed chief of the Leominster, Mass., Fire Department. He topped the civil service list and is the third member of his family to head the department. His father, Frederick F. Johnson, held the post temporarily following the retirement of his uncle, Ernest P. Johnson.

The new chief was appointed a call fireman May 1, 1946, following his discharge from the Marine Corps, in which he served during World War II. On August 10, 1947, he was promoted to the permanent force, and on Feb. 24, 1953, he was made lieutenant.

HENRY H. HANSON

Reading's Youthful Assistant Chief

Reading, Pa., not only has the youngest fire chief in its history, but delegates to the Firemen's Union chose from a list of five candidates, a 32-year-old assistant to Chief Russel Bowers. The new Assistant Chief is Russell P. Mogel, the youngest man to ever hold this important post, and the first member of the Riverside Fire Company to attain the office since 1890.

Asst. Chief Russell Mogel

Mogel, for 14 years a member of the Reading Fire Department, was formerly a chemical analyst for Carpenter Steel Company. He is a qualified Pennsylvania State Fire School instructor and has served on the faculties of several county fire schools.

His father, Paul Mogel, also a state instructor, directs the Berks County Fire School and has been driving for the Riverside Fire Company for 26 years.

A brother, Robert, a member of the Washington, D. C., Fire Department, was nominated by his company, Engine 21, for last year's "Fireman of the Year Award."

The Reading Department has the unique distinction of being the largest volunteer fire department in the United States (probably in the world). Only its three chief officers and the drivers are paid.

ART ESPEY

"DON'T scrap that Truck !!"

MODERNIZE YOUR OLD EQUIPMENT--- AT GREAT SAVINGS!!!

THIELE will bring your obsolete Fire Trucks up to date

REMODELING SERVICE NOW SUPPLEMENTS OUR COMPLETE LINE OF FIRE APPARATUS EQUIPMENT

Today many old fire trucks are being scrapped unnecessarily and with them goes a lot of good serviceable equipment. This valuable equipment can be utilized through Thiele modernization to compete favorably in performance alongside the most modern of fire fighters.

Unlimited possibilities! The Thiele modernization service is flexible and adaptable to meet most every demand. Each piece of equipment will be exclusively designed to meet your most exacting specifications.

- Old truck body rebuilt and installed on new chassis.
- New bodies of any type or size furnished.
- Old pumps transferred or new pumps added.
- High pressure fog equipment added.
- Restyling of units into squad cars, rescue vans, pumpers, combination units and various other arrangements.

GREAT SAVINGS are yours when Thiele modernizes your obsolete equipment. Now it is possible for low-budget fire companies to have "up-to-date" fire fighting apparatus.

So let Thiele—the originators and designers of the Fog-Kar—make your dream of having a modern fire department a reality.

ATTENTION *Equip. Distributors*

Use our customized facilities for your equip. installations. All franchise rights protected.

W. J. THIELE & SONS, INC.

Pine at Cherry Johnstown, Pa.

Manufacturers and Distributors of Truck Equipment

BRAXMAR

GREATEST NAME IN

BADGES

SERVING THE FIRE FIELD

Since 1879

Firemen the world over rely on Braxmar for the finest badges money can buy. We offer the widest possible selection in nickel, chrome plate, sterling silver, gold plate, rolled gold and solid gold; all of our badges and insignia are the work of experts with a lifetime of service.

Write for latest catalog and price list.

Dealer inquiries invited.

C. G. BRAXMAR CO., Inc.

JOHN O. VEIT, *President* — JOHN O. VEIT, JR., *Secretary-Treasurer*

216 E. 45th Street, New York 17, N. Y.

Ammonium Nitrate

(*Continued from page* 483)

the plant premises, it was left intact by the explosion. A check substantiated the idea that a radical change in the amount and type of explosives used on that day occurred. Unbelievable as it might appear, the foreman actually succeeded in loading the fulminate of mercury without an accident. It was known to the management and the explosive engineer that a sufficiently high shock wave such as may result from detonations of either mercury or silver fulminate could under certain conditions explode the salt itself.

The 70-man crew placed the deadly charge and then according to usual procedure climbed on top of this small mountain of salt cake until the foreman detonated the explosive by means of a conventional electrical impulse generator. The 70 men and the foreman scampered to the top of the salt cake in this long dry-dock sized silo until the explosion came! Obviously, they were blown to bits.

The silo, which was completely destroyed, left a cone-shaped crater 175 yards wide at its longest diameter and 40 yards deep. One day later, the crater filled with water to the same level as the nearby Rhine River.

Other sections of the sprawling chemical plant were badly damaged. The blast swept steel frame buildings entirely clear of brick, cement and glass and twisted the gigantic girders into grotesque shapes. Rubble was nearly 20 feet deep from the demolished buildings. Gigantic bridges which carried pipelines between the various buildings were demolished by huge slabs of concrete and other debris which shot throughout the area.

The force of the explosion was felt as far distant as Frankfurt, some 60 miles from Oppau. The town of Oppau itself was almost completely destroyed. While some houses remained standing, they were all so badly damaged that they had to be torn down and rebuilt. Casualties were high in this city of 25,000 people and probably 2,500 of them suffered serious injuries and many more were injured less critically. Other nearby towns were also damaged. The twin cities of Ludwigshafen-Mannheim reported that the greater portions of windows and show cases were shattered, shingles were stripped off rooftops and trees shorn of their leaves from the shock wave.

Some 300 yards from the crater were a number of gas holder sections. The largest of them held approximately 50,000 cubic yards of hydrogen gas. This tank exploded in one instantaneous flash, throwing its bell 300 feet and crumpling it like a newspaper.

Nearby was a huge Ostwald ammonia oxidation building which held large storage tanks for fuming nitric acid. All tanks were punctured by flying debris and the nitric acid spilled out, drenching the area. The acid slowly seeped into a basement of the building where 100 workmen were trapped by fallen debris. An attempt was immediately begun to free them before the acid reached their area. The 100, however, died a slow death and during the rescue atttempts, three volunteers also were fatally burned. All further rescue attempts were then given up and the agonized screams of the trapped slowly dwindled into silence.

In the same general area was a 200-

At New Haven Fire School, Battalion Chief and 'first-in' men use Pocketaire.

Sure Escape for 'First-In' Men with POCKETAIRE

means you can concentrate on fire attack.

"We like Pocketaire because it goes on the fireman instead of on the truck," say Chief Collins of New Haven, Conn., and Battalion Chief Flannigan, head of the famous New Haven Fire School, where Pocketaire was tested in 1953.

Smoke and fumes — the fireman's deadliest enemies — need not be feared when the 'first-in' men are equipped with midget-sized Pocketaire — four pounds of oxygen breathing apparatus that gives time for investigation and ventilation plus a second cylinder which gives 5 minutes for escape.

POCKETAIRE is *first* to combine SAFETY with

- **light weight—4½ lbs.**
- **small size**
- **cost under $100**
- **refills for pennies**

(Send today for our new booklet)

THE CYCLE-FLO COMPANY

108 Gulf St., Milford, Conn.

Please send me your booklet on Pocketaire Breathing Equipment.

Name _____

Address _____

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A few distributorships are still available. Write for details.

MODEL 20 SIRENLITE
for Emergency Vehicles

Siren sounds a penetrating warning, red light automatically flashes authority. Traffic opens instantly, day or night. FREE ROLLING feature.

STERLING SIRENS

- **HANDSOME**
- **RUGGED**
- **RELIABLE**

Built by proud craftsmen to the highest standards of precision manufacturing . . . utilizing materials of finest quality . . . Sterling Sirens give year-after-year of unsurpassed dependability and satisfaction.

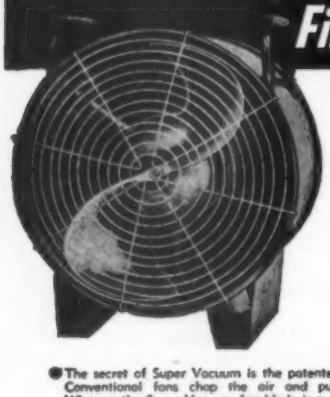
MODEL M GENERAL FIRE ALARM SIREN
for Volunteer Systems

Quick acceleration, power-plus . . . Model M really gets the boys out in a hurry! Used by championship companies from coast to coast. A dependable, heavy-duty siren built of the finest materials throughout.

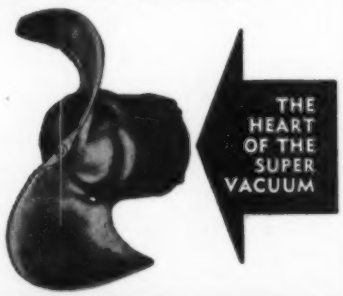
Complete line of Siren Equipment • *Bulletin on Request*

THE STERLING SIREN FIRE ALARM CO., INC.
10 BARTLETT ST., ROCHESTER 8, N. Y.

Revolutionary New Principle Increases Fire-Fighting Efficiency!



● The Super Vacuum Smoke ejector is a powerful portable fan unit designed especially for fire departments. This design is a new and revolutionary principle in moving air. Several thousand Super Vacuum Smoke ejectors are in use throughout the United States and Canada. Controlled ventilation is new and very necessary in fire fighting. Years of service and satisfied users are your best guarantee for any merchandise.



THE HEART OF THE SUPER VACUUM

● The secret of Super Vacuum is the patented fan blade. Conventional fans chop the air and push it back. Whereas the Super Vacuum fan blade is a perfect spiral air screw which creates a partial vacuum, suction is created over the entire face of the blade and the air or smoke is discharged in a high velocity spiral. There are no dead spots—that is why Super Vacuum outperforms other fans twice its size.

Write for Additional Information or Contact Your Local Fire Equipment Dealer

MANUFACTURED EXCLUSIVELY BY

Super Vacuum MANUFACTURING CO.

319 East 17th Avenue • Denver 3, Colorado

foot high boiler used as part of a steam generating plant. It was hit by flying debris and exploded with a deafening roar. No trace of the boiler was found.

Capt. Farrar's source for the report was the late E. A. Boesing, a chemist at the plant, who miraculously escaped injury. Boesing was thrown underneath a crane which buckled. The gigantic steel contraption twisted and when it landed on him formed a perfect shelter. The building he was in was nearly completely destroyed, yet the warped crane shielded him from flying glass, debris and the collapse of a 12-inch thick concrete roof. When the dust settled, Boesing found a layer of dust and rubble 15 inches deep.

The total damage ran into tens of millions of dollars, which was a considerable figure compared to today's inflated prices.

Ironically, a silo nearby the one that was detonated did not explode. It contained 10,000 tons of the chemical. Contrary to conventional silo structure, these enormous storage warehouses were not of the cylindrical upright type but were very large structures built of reinforced concrete and were almost identical in appearance to drydocks. The charge was stuffed into these silos after the crew drilled a number of holes directly into the caked salt.

While everyone in the plant had always been afraid of the high pressure division (where reactions were carried on under pressures of 3500 pounds per square inch at approximately 1000 degrees Fahrenheit), the remarkable fact remains that not a single piece of this monstrous apparatus exploded during the series of blasts, except such portions of the equipment that were directly hit by flying debris, such as steel, beams, concrete blocks and the like up to 20 tons and more.

Reconstruction of the plant at first looked hopeless. The debris was cleared, however, and six weeks later the first two high pressure units went back into operation. Everything had been completely rebuilt eight months later. It's interesting to note that the Farban Co. plant at Ludwigshafen was damaged by an explosion on July 28, 1948, killing 184 persons and injuring 2500 others.

Visiting Fireman Calls Firemen

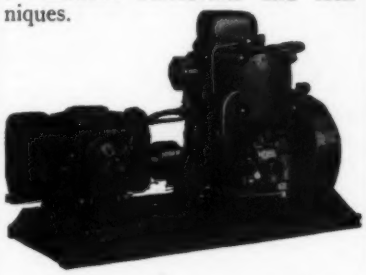
While making pastoral calls at the newly opened USAF Hospital at Edwards Air Force Base, California the Staff Chaplain, Major Norris T. Morton, a veteran Fire Department Chaplain, was talking with a patient on the second floor when the patient called his attention to an automobile which was on fire outside the hospital. Clouds of yellow smoke billowed forth out of the car. The front seat was a mass of flames which did considerable damage to the car.

Chaplain Morton called the fire department by telephone and fire apparatus was dispatched to the scene. The quick work of a Medical Detachment Orderly in fighting the blaze helped keep the fire under control until the fire department arrived.

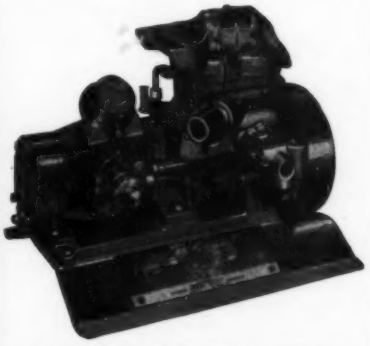
The wife of a local Airman, Mrs. Ronald Gale, had just taken her little daughter into the hospital where she was admitted as a patient. When she returned to her car she found it in flames.

PACIFIC PUMPERS
famous for power plus portability

MODELS "Y" and "5-A" are the two most popular Pacific Pumpers in the field . . . used and proven by private and public fire protection agencies throughout the world. Both are lightweight, perfected for dependable operation and adaptable to all modern accessories and techniques.



Above: Model "Y" . . . medium weight (70 lbs.) for portability with power . . . 63 g.p.m. at 100 p.s.i. to 20 g.p.m. at 225 p.s.i. Below: Model "5-A" . . . lightweight (38 lbs.) but pumps more water than any other comparable unit . . . 32 g.p.m. at 80 p.s.i. to 6 g.p.m. at 275 p.s.i.



PACIFIC "PACOLIZED" HOSE...

the best lightweight hose you can buy for portable or emergency water supply . . . permanently mildew proof and rot resistant . . . the most flexible hose of its type.

Specify "Pacific" Pumpers, Hose and accessories. Write for information on the "Y", "5-A" and the full line of Pacific fire equipment, perfected for portability and high performance.

PACIFIC *Marine Supply Co.*
FIRE EQUIPMENT DIVISION
SEATTLE 1, WASHINGTON

World Wide Fire News

By Rol E. Woolley

Arsenal Employes Get Dose of Nerve Gas

Seventy or more employes of the Rocky Mountain Arsenal in Denver Colo., received mild doses of a deadly nerve gas, the Army disclosed on May 6th. All recovered without permanent injury, in five days.

The effects of the nerve gas were reported by Arsenal medical officers at an Army-Navy-Air Force conference in Denver recently. They admitted that security regulations prevented the telling of the whole story of the effects of the "G-gas," which can destroy the nervous system. Exposed workers told of wild dreams and nightmares, anxiety and jitters and of taking unusual chances, while they were driving. Excellent mechanical, chemical and monitoring devices were credited with limiting the injury to the 70 workers.

* * *

Shocking Booby Trap Y'know

It happened in deah old England; at Plymouth, s'matter of fact. Seems that a Mr. E. R. Hyatt stuck the key in the door of his new metal house, and wham —he was jolted off the stoop.

Mr. Hyatt picked himself up and tried a window. He went down again in a shower of sparks.

He peered into the kitchen and steam was pouring from a cold water faucet. "Stand back!" he warned his wife and children, "This calls for an expert."

Hyatt, the local housing authority repair man, disconnected the power line and inspected the place. He found a bare wire rubbing against the frame of his metal abode—a circumstance which should have blown a fuse, he said, but didn't because a clip holding the ground wire had worked loose.

The Hyatts decided to go to a hotel for a few days. THANKS.—J. JEBENS

* * *

From the World News Ticker

A fire which destroyed a mental hospital building near Saga City in Southern Japan in April, left three patients dead and four missing. . . . An overturned lamp set fire to dried palm fronds being prepared in a small shop in Cordoba, Spain, and four children were burned to death. . . . Police at the town of Glinde, near Hamburg, Germany, adopted a new method of preventing forest fires. They "raided" the pockets of small boys and confiscated all matches they found. . . . Six airplanes and a huge hangar were destroyed by fire April 30, last, at the Royal Canadian Air Force Sea Island base, near Vancouver, B. C. Loss $1½ million. . . . Three warehouses and their contents were burned April 11th last in one of the worst fires in recent years on the Singapore waterfront. Damage reported at $168,000. . . . In Melbourne, Australia, garage-owner Leslie Esler asserted a lamb came to an open window while he was asleep recently, and started bleating. The noise woke him up and he found that his garage was on fire. . . . The village of Samanturai, in northern Ceylon, was almost leveled the night of April 17th last, during a clash between political factions. Rioters brandishing torches and firing guns killed the town council vice-chairman, injured thirty other persons and burned the fifty houses in the

Scott AIR-PAK
On and ready for action in seconds!

Breathe cool, fresh AIR . . . not Oxygen!

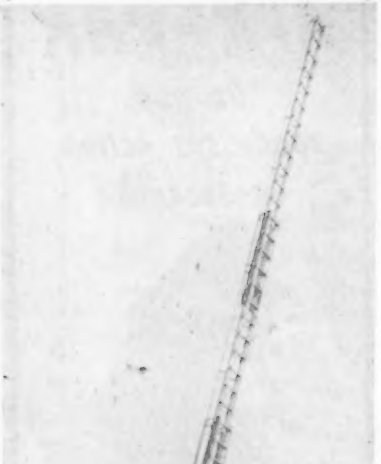
Don't waste valuable minutes at the scene of the emergency for your breathing equipment to start generating. Use the Scott AIR-PAK and you are ready to go in seconds. The AIR-PAK supplies all the cool, fresh air you need. You can go directly to the trouble source without concern for the concentration of gas or vapor because you are absolutely independent of surrounding atmosphere with the AIR-PAK.

No complicated training or practice is necessary. Cool air operation prevents fogging. Using air instead of oxygen inspires confidence in the most inflammable atmosphere. Clear, convenient gage assures dependable check on air supply.

If you would like more information on the world's safest self-contained breathing equipment write today!

SINCE 1932 Scott FOR SAFETY—FOR SERVICE
Safety Equipment Division
SCOTT AVIATION CORP.
215 ERIE STREET LANCASTER, N. Y.
Canada: Safety Supply Co., Toronto, Ont.
Branches in all principal cities
Export: Southern Oxygen Co.
15 West 57th Street, New York 19, New York

MEMCO AERIAL LADDERS
are now available in 50 and 65 foot lengths. The photograph shows the 65 foot model.



These 50 and 65 foot MEMCO AERIAL LADDERS are economical all-metal ladder units designed to be installed on an existing truck or to be installed on new equipment by your fire truck manufacturer. Electrically raised and lowered by power from the truck battery. The ladder sections are very compact for short wheelbase trucks, and all sections have tubular steel hand rails. Safety belt loops are provided for use when operating a ladder pipe.

For details write

MEMCO AERIAL LADDER CO.
1007 N. W. 36th Street,
Oklahoma City 18, Okla.

lage. . . . One navy man was killed and six injured in a fire which roared through the petty officers quarters of the Naval Torpedo Station at Keyport, Wash. There were 30 men asleep in the quarters when fire of undetermined origin broke out early on the morning of May 6th. . . . American Ambassador Thomas Whelan on May 3rd helped fight a fire that destroyed some $500,000 worth of goods in one of Managua, Nicaragua's biggest stores. He is a member of the Managua Volunteer Fire Brigade. . . . Sulphur fumes hampered Newark, N. J., firemen fighting a fire in the hold of the freighter Texas Sword, on May 5th at Port Newark. Fire Chief Harry Sommers said fumes and smoke blocked firemen three times as they tried to get into the hold where flames raged in stores of sulphur and sheet burlap. . . . Fire destroyed the interior of the historic Hagerman House in French Azilum, near Towanda, Pa., April 16th. The home was built in 1836 by John La Porte, a French Royalist, who fled his homeland during the French revolution. It was made of solid wood planking and still had original wallpaper and many old French furnishings. . . . In Wilhelmshaven, Germany, a 45-year-old businessman emptied a 5-gallon can of gasoline at the entrance of the local revenue office, then set it afire and calmly drove off, police said. When arrested an hour later, he said he thought his last income tax was too high.

New Edition of Salvage Handbook

The National Board of Fire Underwriters has just announced publication of a new 62-page edition of its handbook on fire department salvage operations which will help in reducing property damage caused by water, smoke and other elements.

Much of the material deals with the care, maintenance and handling of salvage covers and essential salvage operations in connection with fire department activities.

Most businessmen have no knowledge of salvage work or what it entails unless they have experienced a fire or water leakage at one time or another. Consequently, they arrange their stock and fixtures with little or no regard to the serious results of water loss in event of fire. If they had a fundamental understanding of the salvage operations performed by their fire departments, they would arrange their furnishings and merchandise by definite plan with the problems of salvage in mind. Then, in the event of fire, the fire companies could start cover work immediately without losing valuable time in preparing the contents of a room or building for proper covering.

While these practices are especially beneficial in case of fire, they serve a like purpose in those instances where careless tenants allow sinks or other plumbing fixtures to overflow, or where they allow roof drains to clog and roofs to leak during times of severe rains and winter thaws when serious water losses often occur.

Basement stocks are most susceptible to water damage not only in buildings where fire originates, but also in those in the immediate vicinity of large fires. Added to this is the possibility of sewers backing up from heavy rains or clogged sewer connections.

PROTECTS *your face*

Heat-reflecting, aluminized asbestos fireman's hood with built-in safety helmet . . . goes on in seconds . . . gives you that extra protection around the face that often makes all the difference in saving a life or valuable property. Helmet has adjustable felt lining. Window is ¼" laminated safety glass, measures an ample 5" x 6¾". Gloves shown are #460, 14", asbestos—one of many styles we furnish.

Write for further information.

FIRE RESCUE SUIT
Field Tested up to 1800° F.

When searing heat calls for a man in a fire suit *fast*, he's got to get that suit on in a hurry—without fumbling. That's the ISSCO Fire Rescue Suit. A man can be in it and ready for action in less than a minute—*without help*. He's completely protected, in a roomy, pliable garment weighing only 28 lbs. He can see well. He can work rapidly, effectively—saving lives or knocking out the heart of a blaze quickly. Not just another "asbestos suit," but a scientifically compounded garment utilizing fibre glass, aluminum foil, vinyl-treated glass cloth and asbestos. Rigidly field tested up to 1800° F., with and without respiratory equipment. Complete details on request.

ISSCO makes a complete line of protective clothing — suits, gloves, mitts, coats, chaps, aprons, blankets, etc.

INDUSTRIAL SAFETY SPECIALTIES COMPANY
8th and Chestnut Sts., Perkasie, Pennsylvania
Protective clothing for every situation!

Convention Dates

June 24-26—UTAH STATE FIRE SCHOOL. Annual meeting, Salt Lake City, Utah. For information, contact Salt Lake City Fire Department.

June 24-25—NORTHERN CENTRAL NEW YORK VOLUNTEER FIREMEN'S ASSOCIATION. Annual meeting, Waterloo, N. Y. Secretary, Samuel J. Pitcher, Box 91, Fairport, N. Y.

June 24-26—SOUTHERN NEW YORK VOLUNTEER FIREMEN'S ASSOCIATION. Annual meeting. Oyster Bay, L. I., N. Y. Secretary, Ernest Stoll, Box 12, Bayport, N. Y.

June 25-26 — NEW YORK-PENNSYLVANIA FIREMEN'S ASSOCIATION. Annual meeting, Elkland, Pa., in conjunction with Elkland's Old Home Week. Secretary, Harry Drost, 247 Dodge Avenue, Corning, N. Y.

June 27 — NEBRASKA REGIONAL FIRE SCHOOL, Cambridge, Neb. Secretary, Russell D. Salak, P. O. Box 312, Schuyler, Neb. School Director, Otto B. Johannes, Columbus, Neb.

July 10-11—OHIO REGIONAL FIRE SCHOOL, Lyndhurst, Ohio. Sponsored by local county firemen's association and Ohio State Department of Trade and Industrial Education. Director, Walter R. Banning, 606 4th Street NW, New Philadelphia, Ohio.

July 11-16—TEXAS FIREMEN'S TRAINING SCHOOL. Annual meeting, Texas A. & M. College, College Station, Tex. Director, H. R. Brayton, Engineering Extension, Texas A. & M. College, College Station, Tex.

July 13—EGYPTIAN FIRE FIGHTERS ASSOCIATION. Mid-Season meeting, Ashley, Ill. Secretary, Chief George H. Holmes, 250 N. Division Street, Carterville, Ill.

July 13-16—MICHIGAN STATE FIRE CHIEFS ASSOCIATION. Annual meeting, Ishpeming, Mich. Secretary, Chief Harry L. Ridout, Muskegon Heights, Mich.

July 13-16—LOUISIANA STATE FIRE MARSHAL'S ARSON AND FIRE PREVENTION SCHOOL. Annual meeting, Monteleone Hotel, New Orleans, La. Director, Sidney S. Bowman, State Fire Marshal, New Orleans, La.

July 15-17—NEVADA STATE FIREMEN'S ASSOCIATION. Annual meeting, Ely, Nev. For information, contact Ely Fire Department.

July 15-17—"F" ASSOCIATION FOR FORMER U. S. NAVY, COAST GUARD AND MARINE CORPS FIREFIGHTERS. Annual meeting, American Legion Hall, Washington, D. C. Secretary-Treasurer, William J. Mignery, 1108 Bellevue Street, St. Joseph, Mo.

July 15-17—CENTRAL NEW YORK FIREMEN'S ASSOCIATION. Annual meeting, Watkins Glen, N. Y. Secretary, George W. Lang, 10 Ellwood Avenue, Cortland, N. Y.

July 16-17—HUDSON-MOHAWK VOLUNTEER FIREMEN'S ASSOCIATION. Annual meeting, Scotia, N. Y. Secretary, Harold A. Cass, 2614 Albany Street, Schenectady 4, N. Y.

July 16-17—ONONDAGA COUNTY VOLUNTEER FIREMEN'S ASSOCIATION. Annual meeting, tournament and parade, North Syracuse, N. Y. Secretary, Benedict Glenn, 211 Mackay Avenue, Syracuse, N. Y.

July 19—FLORIDA STATE FIRE COLLEGE. Third of four sessions, Ocala, Fla. Director, W. H. Barnett, Superintendent, Florida State Fire College, P. O. Box 785, Ocala, Fla.

July 19-22—SHORT COURSE FOR FIREMEN. Annual meeting, Dover, Dela. Director, Frank M. Forstburg, Delaware State Board for Vocational Education, 511 W. 8th Street, Wilmington, Dela.

July 19-23—WEST VIRGINIA STATE FIRE SCHOOL. Annual meeting, Morgantown, W. Va. Director R. E. Hanna, Jr., Supervisor, Fire Service Extension Schools, West Virginia University, Morgantown, W. Va.

July 21-24 — WASHINGTON STATE FIRE SCHOOL. Annual meeting, Tacoma, Wash. Director, J. R. Cook, Assistant Supervisor State Board for Vocational Education, 1712 Harvard Avenue, Seattle, Wash.

Oil Reservoir — Filled through pipe plug in bonnet — assures positive lubrication of stem threads.

Dry Top Design — Prevents freezing of stem threads.

"O" Ring Seals — Make permanent water-tight seal around stem.

Breech Locked Nozzles — Interlocking lugs prevent blowout.

Compression-type Main Valve — Closes with water pressure.

Double Drain Valves — Integral part of main valve assembly.

Double Drain Openings — Force flushed each time hydrant is operated.

Safety Stem Coupling and Safety Flange — Coupling and flange break on impact, preventing damage to stem and barrel. Permits convenient facing of nozzles. Extension sections may be added or upper barrel may be changed from two-way to three-way hydrant without digging or water shut-off.

Bronze Seat Ring — Straight threads for easy removal.

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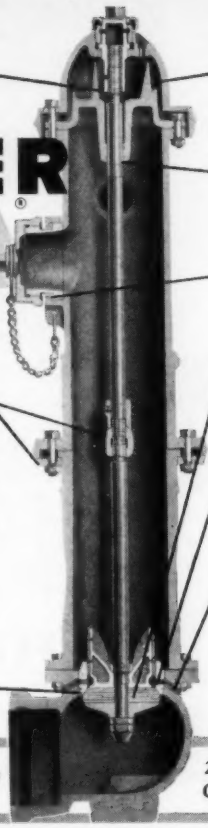
AWWA Improved

FIRE HYDRANT



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Dependable Since 1857

2501 Chestnut St., Chattanooga, Tennessee

For *Volume* and *Pressure*

Specify HALE

HALE FIRE PUMPS are built in all STANDARD CAPACITIES

VOLUME *and* PRESSURE *are* both vital in controlling or stopping disastrous fires . . . the kind you have to fight all too often in mid-winter.

Firefighters who have used Hale FIRE Pumps *know* they can depend on a HALE for the right volume and the right pressure to fit a wide range of tough fire-fighting conditions.

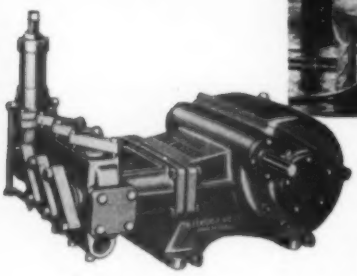
In other words, they have learned through first-hand experience to appreciate a Hale's flexible range of performance and high efficiency.

Make sure of dependable *Volume* and *Pressure* in your next piece of apparatus by insisting on a Hale Fire Pump.

Write today for up-to-date bulletins on HALE FIRE PUMPS; they are built in all standard capacities.

HALE FIRE PUMP COMPANY
CONSHOHOCKEN, PA.

If it's fog you need...



Some fires can be brought under control more quickly with a cooling fog spray than with a high volume stream.

Many manufacturers of today's fire-fighting equipment install a Myers Bulldozer Fire Pump to provide the dependable high pressure required to produce effective fog.

Write today for an illustrated catalog of the complete line of Myers Bulldozer Fire Pumps.

MYERS FIRE PUMPS

THE F. E. MYERS & BRO. CO.
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"The Halligan Tool has proven invaluable in forcible entry and rescue work—usually the first tool used—it's the answer to our problems—it's STANDARD EQUIPMENT in our department."

NOTHING COMPARES WITH IT FOR FORCIBLE ENTRY!

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1001 USES—DOES EVERYTHING—EVERYWHERE

YOUR GUARANTEE

Convention Dates

July 22-24—ULSTER COUNTY VOLUNTEER FIREMEN'S ASSOCIATION. Annual meeting, New Paltz, N. Y. Secretary, Fred C. Harder, 34 Jarrold Street, Kingston, N. Y.

July 23-24—DUTCHESS COUNTY VOLUNTEER FIREMEN'S ASSOCIATION. Annual meeting, Millbrook, N. Y. Secretary, Al Belle Isle, Glenham, N. Y.

July 23-24—EASTERN ONTARIO FIREMEN'S ASSOCIATION. Annual meeting and International Firemen's Day, Gananoque, Ont. Secretary-Treasurer, Gerald F. Hampton, Gananoque, Ont.

July 27-28—WESTERN NEW YORK VOLUNTEER FIREMEN'S ASSOCIATION. Annual meeting, Tonawanda, N. Y. Secretary, James H. Surridge, 308 East Henrietta Road, Rochester 20, N. Y.

July 27-29—MISSOURI FIRE COLLEGE. Annual meeting, University of Missouri, Columbia, Mo. Director, J. I. Fetters, Administrative Assistant, Adult Education and Extension Service for Firemanship Training, University of Missouri, Columbia, Mo.

July 27-29—WISCONSIN STATE FIRE CHIEFS ASSOCIATION. Annual meeting, Beloit, Wis. For information contact Chief Alex Andreski, Fire Headquarters, Janesville, Wis.

July 30-Aug. 2—FIREMEN'S ASSOCIATION OF ONTARIO. Annual meeting, Milton, Ont. Secretary, E. O. McNeely, 141 Brownville Avenue, Toronto 9, Ont.

Aug. 2-6—PENNSYLVANIA FIRE SCHOOL. Annual meeting, Lewistown, Pa. Director, Edgar A. Spotz, Adviser, Fire Service Training, Box 911, Harrisburg, Pa.

Aug. 9-14—INTERNATIONAL ASSOCIATION OF FIRE FIGHTERS. Annual meeting, Miami, Fla. Secretary-Treasurer, George J. Richardson, of A. F. of L. Building, Washington 1, D. C.

Aug. 16-18—WISCONSIN FIRE SCHOOL, University of Wisconsin. Annual meeting, Madison, Wis. Director, J. J. Lichty, Coordinator Business Institutes, Box 2098, Madison, Wis.

Aug. 16-19—CANADIAN ASSOCIATION OF FIRE CHIEFS. Annual meeting, Saskatoon, Sask. Secretary-Treasurer, Allan H. Clark, Chief of Fire Department, Lakefield, Ont.

Aug. 17-18—FIREMEN'S ASSOCIATION OF THE STATE OF NEW YORK. Annual meeting, Buffalo, N. Y. Secretary, Eugene M. Braun, 4025 Main Street, Buffalo, N. Y.

Aug. 17-19—FIRE PROTECTION ENGINEERING CONFERENCE. Held under sponsorship of the M. I. T. School of Architecture and City Planning, the M. I. T. School of Engineering and the M. I. T. School of Industrial Management. For information regarding program, method of enrollment, living accommodations in the M. I. T. dormitory system, etc., write Professor Ernest H. Huntress, Director of the Summer Session, Massachusetts Institute of Technology, Cambridge 39, Mass.

Aug. 20—FLORIDA STATE FIRE COLLEGE, Fourth of four sessions, Ocala, Fla. Director, W. H. Barnett, Superintendent, Florida State Fire College, P. O. Box 785, Ocala, Fla.

Aug. 20-22—OHIO STATE FIREMEN'S ASSOCIATION. Annual meeting, Youngstown, Ohio. Secretary-Treasurer, H. E. Miller, Box 35, Mantua, Ohio.

Aug. 23-26—PACIFIC COAST INTER-MOUNTAIN ASSOCIATION OF FIRE CHIEFS. Annual meeting, Long Beach, Cal. Secretary-Treasurer, Jay W. Stevens, Merchants Exchange Building, San Francisco, Cal.

Aug. 23-27—TENNESSEE STATE FIRE SERVICE SCHOOL. Annual meeting, Middle Tennessee State College, Murfreesboro, Tenn. Directors, H. S. Elkins, W. A. Seeley, Fire Department Instructors, 215 Chesnut Street, Chattanooga, Tenn.

Aug. 25-28—MONTANA STATE FIREMEN'S SCHOOL. Annual meeting, Polson, Mont. Director, Clayton Brown, Chief of the Fire Department, Polson, Mont.

Sept. 4-6—NORTHEASTERN PENNSYLVANIA VOLUNTEER FIREMEN'S FEDERATION. Annual meeting, Taylor, Pa. Secretary, Harry Armstrong, 134 Washington Street, Taylor, Pa.

Convention Dates

Sept. 7-10—MARYLAND SHORT COURSE FOR FIREMEN. Annual meeting, University of Maryland. For information, contact Robert C. Byrus, Director, Fire Service Extension, Fire Service Building, University of Maryland, College Park, Md.

Sept. 10-12—OHIO FIRE CHIEFS' ASSOCIATION. Annual meeting, Akron, Ohio. Secretary-Treasurer, Chief William H. Cheesman, Harrison Township, Dayton, Ohio.

Sept. 11-12 (tentative)—SOUTHERN WISCONSIN AND NORTHERN ILLINOIS FIRE SCHOOL. Director, Norris T. Ames, Insurance Building, Madison, Wis.

Sept. 13-17—VIRGINIA STATE FIRE SCHOOL. Annual meeting, Norfork, Va. Director, Clay A. Easterly, Fire Marshal, P. O. Box 112, Martinsville, Va.

Sept. 13-17—OHIO STATE FIRE SCHOOL. Annual meeting, Ohio State University, Columbus, Ohio. Further information can be obtained from Wayne C. Jenkins, Assistant Fire School Director, Division of State Fire Marshal, Columbus 15, Ohio.

Sept. 14-15—IOWA FIREMEN'S ASSOCIATION. Annual meeting, Independence, Ia. Secretary, Carl H. Fuchs, 2749 Kinsey Avenue, Des Moines, Ia.

Sept. 14-17—INDIANA STATE FIRE SCHOOL. Annual meeting, Purdue University, Lafayette, Ind. Director, Francis W. Hartman, Chief of Fire Training, Purdue University, Building FWA7, West Lafayette, Ind.

Sept. 17-18—JEFFERSON COUNTY VOLUNTEER FIREMEN'S ASSOCIATION. Annual convention and tournament, Deferiet, N. Y. Secretary, Jack Farrell, 418 Merrick Street, Clayton, N. Y.

Oct. 4-7—INTERNATIONAL MUNICIPAL SIGNAL ASSOCIATION. Annual meeting, Atlantic City, N. J. Secretary-Treasurer, Irwin Shulsinger, 130 West 42nd Street, New York, N. Y.

Oct. 12-14—ILLINOIS FIREMEN'S ASSOCIATION. Annual meeting, Evanston, Ill. Secretary, R. W. Alsip, P. O. Box 8, Champaign, Ill.

Oct. 12-15—KANSAS STATE FIRE SCHOOL. Annual meeting, University of Kansas, Hutchinson, Kans. Director, Georald Pearson, Director, University of Kansas Extension Classes, 111 Fraser Hall, Lawrence, Kans.

Oct. 14-16—ARIZONA STATE FIRE TRAINING SCHOOL. Annual meeting, Phoenix, Ariz. Director, Harry C. Bigglestone, District Engineer, Board of Fire Underwriters of the Pacific, Luhrs Building, Phoenix, Ariz.

Oct. 17—GREAT LAKES ASSOCIATION OF FIRE CHIEFS. Annual meeting, Rice Hotel, Houston, Tex. Secretary-Treasurer, Chief Elmer Stough, 605 Fourth Street, Lorain, Ohio.

Oct. 18-20—NEBRASKA STATE VOLUNTEER FIREMEN'S ASSOCIATION. Annual meeting, Lincoln, Neb. Secretary-Treasurer, Russell D. Salak, P. O. Box 312, Schuyler, Neb.

Oct. 18-21—INTERNATIONAL ASSOCIATION OF FIRE CHIEFS. Annual meeting, Houston, Tex. Secretary-Treasurer, Chief Daniel B. Tierney, 8 Robbins Road, Arlington 74, Mass.

Oct. 19-20—INTERNATIONAL FIRE BUFF ASSOCIATES, INC. Annual meeting, Houston, Tex., during the I. A. F. C. Conference. Secretary, E. R. Damaschke, 916 West Marshall Avenue, Ferndale 20, Mich.

Memorial Day Holiday Toll 501

Fire played its part in the nation's three-day Memorial holiday. Complete reports showed 70 persons killed by fire, airplane and accidents other than traffic, which claimed 345 lives, and drowning, which took 86.

New Fire Station for Cicero

DeLeuw, Cather & Company, Consulting Engineers, Chicago, have been commissioned to prepare plans for a new fire station for the Hawthorne area of Cicero, Ill.

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pages 484, 485 of Fire Engineering, reporting the large scale fire tests with foam made with UNOX penetrant?

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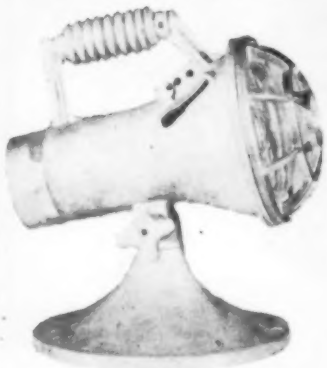

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The ROUND TABLE

For Practical Discussion of Current Fire Department and Fire Management Problems

HYDRANT PURCHASE, REPAIR AND MAINTENANCE

THE discussion in this Round Table is a continuation of that which appeared in the April and May issues on hydrant purchase, repair and maintenance.

The generous response from our readers made it necessary to carry the discussion over to this issue.

Readers are invited to send in their comments on this subject or on next month's subject which is described in a box on a subsequent page. Address replies to Round Table Editor, FIRE ENGINEERING, 24 West 40th Street, New York 18, N. Y.

Discussion of the Topic

Bernard Raebel, Chief, Yuma, Ariz.: We have not been able to limit the use of fire hydrants to the Fire Department only.

They are used by the Street Department to flush sewers and fill water trucks.

Contractors receiving permission from the Arizona Public Service Company also use hydrants to fill large water trucks.

The hydrants are bought and installed by the Arizona Public Service Company. The City of Yuma pays $1.50 per month rent for each hydrant.

Hydrants are repaired by the Arizona Public Service Company. The Fire Department inspects and paints them, ordering repairs when necessary.

The Fire Department determines where the hydrants are to be located.

Alpha B. Hall, Chief, Fairmont, W. Va.: The use of fire hydrants in this city has been limited solely to the Fire Department, except when the Street Department will fill a tank truck to wash streets.

The Water Department purchases, maintains and repairs fire hydrants.

The fire hydrants are placed and inspected jointly with the Water Department. We are a fully paid department.

W. J. Taylor, Chief, Burbank, Calif.: We have not been able to limit the use of fire hydrants to the Fire Department only. They are used by the Street and Public Service (Light & Water) Departments, and by contractors as well.

The Fire Department purchases, maintains and makes minor repairs, the Water Department making major ones. It also determines where hydrants are to be placed and inspects the hydrants.

William Cobb, Chief, Westmount, Que.: The City of Westmount pays a fee to the City of Montreal for the use of hydrants, as Westmount is totally surrounded by Montreal. By law, the City of Montreal may use our hydrants. City street flushers also use them.

The hydrants are purchased, maintained, repaired and inspected by the City of Montreal. We have a cooperative arrangement with the City of Montreal insofar as placement of hydrants is concerned.

Howard Rindt, Chief, Danville, Ill.: We have not been able to limit the use of hydrants to the Fire Department only. They are used by the Street and Sewer Departments.

The Interstate Water Co. (privately owned) purchases, maintains, repairs and inspects all hydrants. The Fire Chief is consulted in the placement of hydrants.

Holland S. Knight, Chief St. John N. B.: We have not been able to limit the use of hydrants. They are used by the Department of Sanitation for filling street flushers.

Occasionally construction companies ask to use the hydrants. They must receive permission from the Water Department. After they are finished using the hydrants, the Water Department checks them.

The Water & Sewerage Department purchases, maintains, repairs and inspects hydrants. The Fire Chief determines where they are to be placed.

F. R. Dimond, Chief, Hutchinson, Kans.: The Street and Sewer Departments are the only city departments using hydrants outside of the Fire Department.

Hydrants are owned by the Utility

HERE ARE THE QUESTIONS

1. Have you been able to limit the use of fire hydrants in your city to the fire department only?
2. If not, what other city departments commonly use the fire hydrants?
3. If other than municipal departments use the fire hydrants, who are they?
4. Who purchases the fire hydrants: (a) the water department, (b) the fire department?
5. Who maintains fire hydrants?
6. If repairs are required, who makes them?
7. Who determines where fire hydrants are to be placed?
8. Who inspects fire hydrants?

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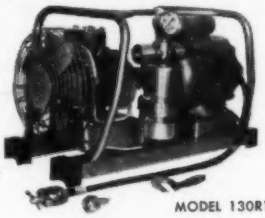

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—the Hutchinson Water Co. Rent is paid by the Fire Department. The Utility maintains, repairs and inspects hydrants. The Fire Chief recommends where they are to be placed, but often the City Engineer makes the final decision.

Louis P. Spandle, Director, Kansas City, Kans.: We have not been able to limit the use of fire hydrants to the Fire Department only. They are used by the Street Flushing Department and by the Park and Recreation Department on occasion.

The Water Department purchases the hydrants. We rent on a yearly basis. The Board of Public Utilities maintains, repairs and inspects. The Superintendent of Water and the Fire Director determine where they are to be placed.

Our plan has worked very well. We notify the Water Department of each hydrant used during freezing weather, and they check them at once to see that they have been drained and aren't freezing.

Thomas Pollard, Chief, Independence, Mo.: We have not been able to limit the use of hydrants exclusively to the Fire Department. They are used by the Street and Sewer Departments.

We buy our water from the Missouri Water Co. at $45.00 a plug and have approximately 700 plugs.

The Water Company purchases, maintains, repairs and inspects hydrants. Location of hydrants is determined by the Missouri Inspection Bureau.

R. Beaulieu, Chief, Quebec, P. Q.: We have almost limited the use of fire hydrants to the Fire Department. They are sometimes used in cleaning sewers and flushing streets. If other than municipal departments use the hydrants, they have to receive special permission from the Fire Chief and then that particular hydrant is under the supervision of a hydrant inspector.

The Water Department purchases all hydrants. Hydrant inspectors under orders from the Fire Chief maintain and inspect hydrants. These inspectors are members of the Fire Department. The Water Department makes all repairs and determines jointly with the Fire Department where hydrants are to be placed.

R. E. Paré, Director, Montreal, Que.: With but one exception we have been able to limit the use of fire hydrants in the City of Montreal to the Fire Department, namely, the Aqueduct Division of Public Works, otherwise known as the Water Department. This occurs in the summer and involves the filling of street flushers.

The Water Department purchases, maintains, repairs and inspects the hydrants. The Fire Department determines where they are to be located.

W. H. Ferguson, Chief, Edmonton, Alta.: We have been able to limit the use of fire hydrants to the Fire Department.

The Waterworks Department purchases, maintains, repairs and inspects the hydrants and the Fire and Waterworks Departments jointly determine where they are to be placed.

T. R. Tillett, Chief, Bremerton, Wash.: The hydrants in our city are used by the Water and Street Departments as well as the Fire Department.

The Water Department purchases,

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COMBINATION EXPANDER
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Expander for Hose Sizes from ¾" to 3"
Greater Expansion Greater Economy
Easy to operate
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MOTORS CORP.
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maintains, repairs and inspects hydrants. The Fire Department pays $20.00 a year rental for each hydrant.

The City Engineer, Commissioner of Public Works and the Fire Chief determine the location of hydrants.

B. L. Warlick, Chief, Jackson, Tenn.: We have not been able to limit the use of hydrants to the Fire Department. They are used also by the Water and Street Departments.

The Water Department purchases, maintains and repairs the hydrants. The Water and Fire Departments jointly make inspections and determine where hydrants are to be placed.

E. L. Smith, Chief, Salem, Ore.: We have not been able to limit the use of hydrants to the Fire Department. The Street Department also uses them to fill flusher tanks and sweepers.

The Fire Department purchases, maintains and inspects hydrants, and determines where they are to be placed. The Water Department makes repairs, but the cost of them is charged to the Fire Department budget.

George Schlotterbeck, Chief, Hamilton, Ohio: We have not been able to limit the use of fire hydrants to the Fire Department. They are used by the Street and Sewer Departments as well.

The Water Department purchases the hydrants, but the Fire Department is charged for them.

The Water Department maintains, repairs and inspects all hydrants. The Chief of the Fire Department determines where the hydrants are to be located.

Charles W. Halloran, Fire Commissioner and Fire Chief, Buffalo, N. Y.: We have not been able to limit the use of hydrants to the Fire Department.

The Water Department purchases, maintains, repairs and inspects all hydrants and in consultation with the Fire Department determines where they are to be located.

The Fire Department reports all hydrants used during freezing weather and any found defective are immediately taken care of. The high pressure system is controlled, inspected and maintained by the Fire Department.

Anthony Molloy, Chief, Nashua, N. H.: The only department other than the Fire Department using fire hydrants is the Public Works Department.

The Water Department purchases, maintains, repairs and inspects the hydrants. They determine usually where the hydrants are to be located. In some instances the Fire Department is consulted.

Our Water Department is a private utility.

Lucian B. Smith, Chief, Billings, Mont.: The Street Department uses our hydrants for street flushing at designated hydrants.

The Water Department purchases, maintains and repairs all hydrants. The recommendations of the Chief of the Fire Department are sought in placing hydrants.

The Water and Fire Departments make voluntary inspections once each year.

Frank Everett, Chief, Rochester, Minn.: The City Engineering Department also uses fire hydrants.

The Water Department purchases, maintains, repairs, inspects and determines the placement of hydrants.

Joseph L. Trudell, Chief, Bay City, Mich.: We have not been able to limit the use of fire hydrants. All other city departments use them.

The Water Department purchases,

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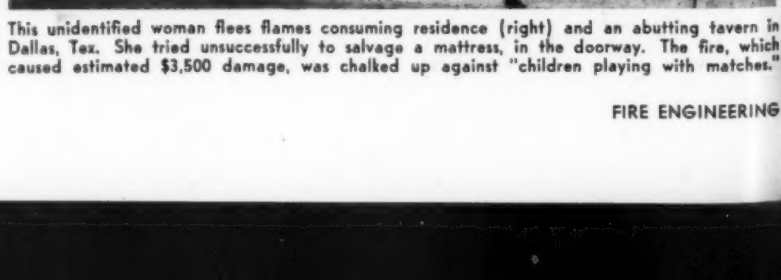

This unidentified woman flees flames consuming residence (right) and an abutting tavern in Dallas, Tex. She tried unsuccessfully to salvage a mattress, in the doorway. The fire, which caused estimated $3,500 damage, was chalked up against "children playing with matches."

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NOT WET
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maintains, repairs and inspects the hydrants. The Fire Chief determines where they are to be placed.

John V. Stapleton, Chief, Boston, Mass.: We have been able to limit the use of hydrants to the Fire Department.

The Public Works Department, of which the Water Division is a part, purchases, maintains, repairs and inspects the hydrants. The Fire Department, however, makes external inspections. Both the Fire Department and Public Works Department determine where hydrants are to be located.

J. W. Hall, Chief, Hagerstown, Md.: With the exception of the Water Department, we are able to limit the use of fire hydrants to the Fire Department.

The Water Department purchases, repairs, maintains and inspects all hydrants and jointly with the Fire Department determines where hydrants are to be located.

Howard Dey, Chief, New Orleans, La.: We have been able to limit the use of fire hydrants to the Fire Department.

The Water Department purchases, maintains, repairs and inspects hydrants.

John H. Krusenklaus, Chief, Louisville, Ky.: We have not been able to completely limit the use of fire hydrants to the Fire Department. The only exception is the water sprinkler for street cleaning.

Hydrants are purchased by the board of Works. The Louisville Water Company (city owned) maintains, repairs and inspects hydrants. The Fire Department determines where hydrants are to be placed and together with the Board of Works makes inspections.

John M. Hill, Chief, Sioux City, Ia.: We have not been able to limit the use of hydrants to the Fire Department. The Water, Sewer and Street Departments, as well as an occasional private contractor use the hydrants.

The Water Department purchases, maintains, repairs, determines where they are to be placed and inspects fire hydrants.

Steve Taylor, Chief, Boise, Ida.: We have not entirely been able to limit the use of hydrants to the Fire Department. They are used by the Street Department as well.

The Fire Department purchases, maintains and inspects fire hydrants. Major repairs are made by the Water Company, supervised by the Fire Department. The Fire Department also determines where hydrants are to be placed.

F. C. Kelley, Chief, Jacksonville, Fla.: We have almost entirely been able to limit the use of hydrants to the Fire Department. Occasionally the Sewer Department uses them for supply line.

The Water Department purchases, maintains and repairs the hydrants. The Fire Department determines where they are to be located and both departments make inspections.

George T. Morgan, Chief, Wilmington, Dela.: The Street and Sewer Departments use fire hydrants as well as the Fire Department. Contractors, too, use them.

The Water Department purchases, maintains, repairs, inspects and determines the location of hydrants.

Thomas Collins, Chief, New Haven, Conn.: We have not been able to limit the use of fire hydrants to the Fire

McINTIRE GATE VALVES

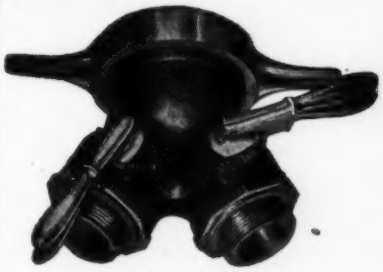

Fig. 164AN
4½" swivel female x two 2½" male Gated Siamese. Quick opening, ¼ turn valves.

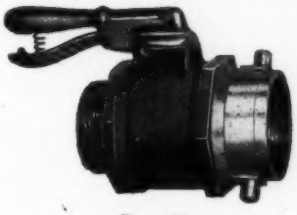

Fig. 163
Made either Right Hand or Left Hand 2½" male x female, gate valve.

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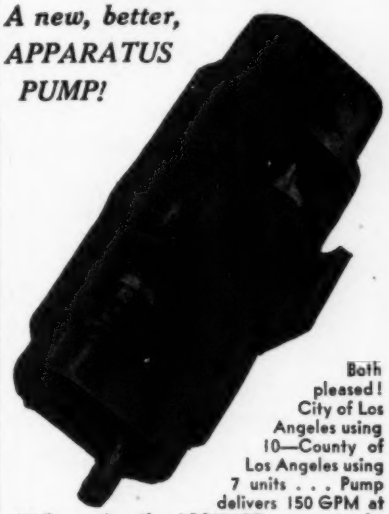

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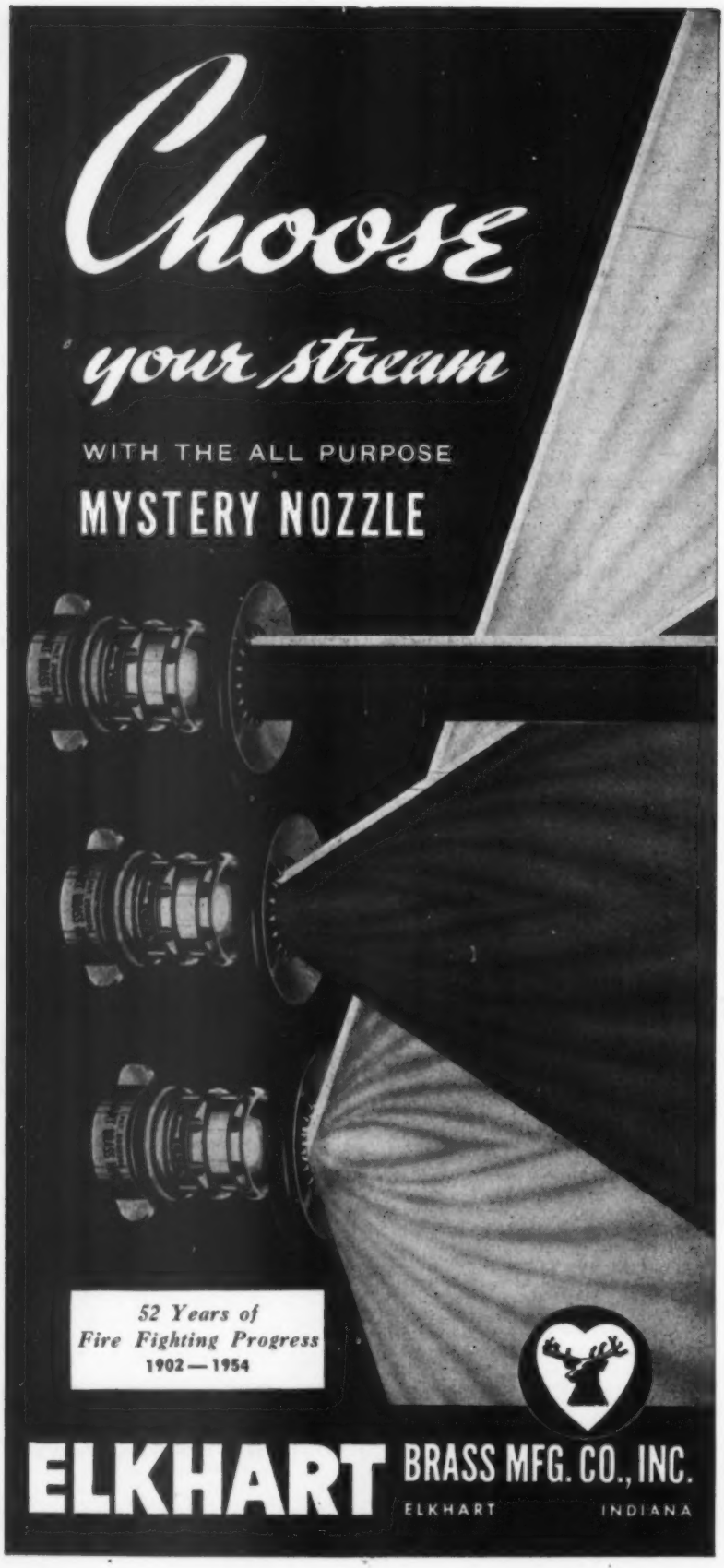

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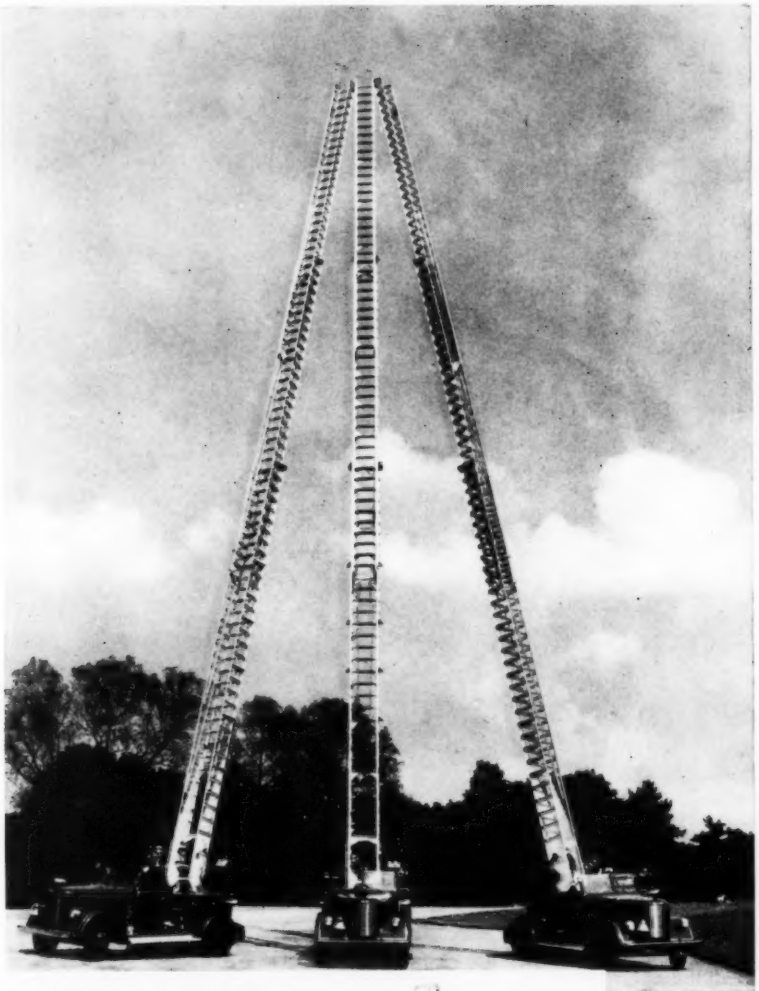

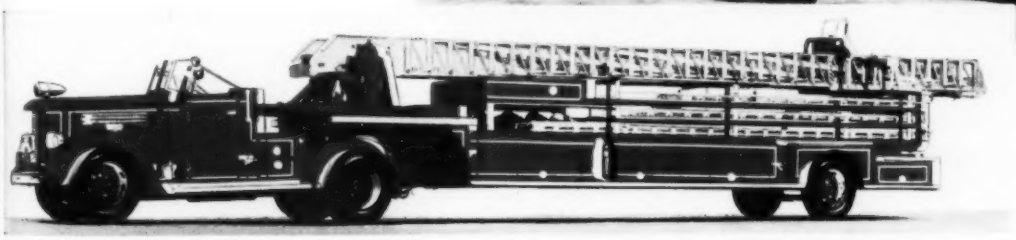

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Dependable, strong, efficient aerial ladders are needed to handle elevated fire streams and rescue operations when lives and property are at stake. The Pirsch aluminum alloy aerial ladder powered by the Pirsch Hydro-Mechanical Aerial Hoist gives you all these features and more. If you are buying an aerial ladder truck get the facts about Pirsch aerials.

Three 100' Pirsch Senior aerial ladder trucks shown above delivered to City of Rochester, N. Y., making a total of nine Pirsch aerials in service there.

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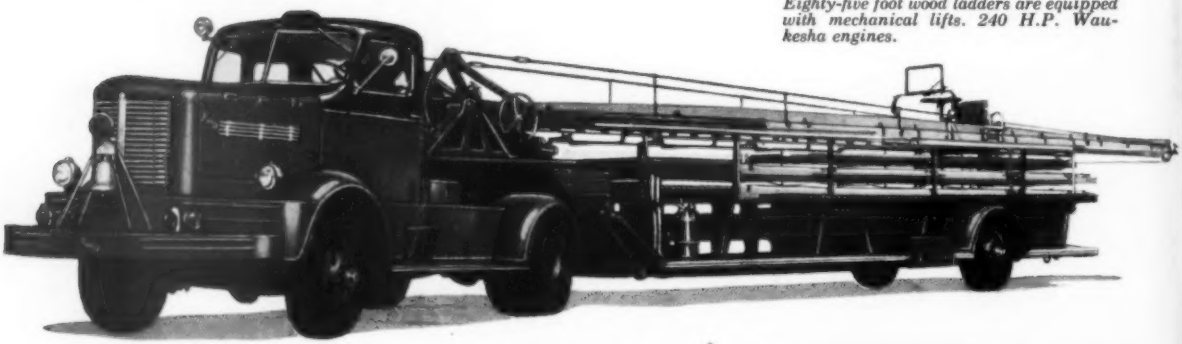
Chicago *again* chooses FWD®

One of thirty FWD Model F1000T Fire Engines recently purchased by the City of Chicago. Powered by 240 H.P. Waukesha engines, these units discharge a minimum of 1000 gallons of water per minute by means of Waterous two-stage centrifugal pumps.

The City of Chicago purchased twelve of these FWD Model FA85K Aerial Ladder Units, along with one additional tractor. Eighty-five foot wood ladders are equipped with mechanical lifts. 240 H.P. Waukesha engines.



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North side, South side, in congested Loop areas or outlying factory districts . . . a great city needed the finest in fire protection, *knew it was FWD!* With *all-wheel* power gripping on the turns, drivers make 'em tighter with greater safety, *without* losing precious seconds that mean saving lives and property. On the straightaway too, a safer *sustained* speed gets men and equipment *on the job* in shape to *do* it. Greater controllable traction takes this apparatus through the toughest traffic tangles *safely*, minimizes skids and spins under wet or icy road conditions. This makes 56 pieces of FWD fire apparatus protecting Chicago taxpayers. For the lowdown on why communities all over the nation are switching to FWD, ask your FWD Dealer. *He knows!*

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Ask for your copy of "FWD Fire Engines"; photos and descriptions of FWD equipment carefully chosen by communities all over the country. Let it help you make your choice!

FWD Fire Engines

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